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BOARD OF EDITORS { Mr. Horace E. Smith, Chief Clerk of Weather Bureau, Professors Henry A. Hazen, Thomas Russell, and Charles F. Marvin, and Mr. Edward B. Garriott, in charge of Review Room.

INTRODUCTION.

This REVIEW is based on reports for February, 1893, from 2,889 regular and voluntary observers. These reports are classified as follows: 164 reports from Weather Bureau stations; 45 reports from United States Army post surgeons; 2,122 monthly reports from state weather service and voluntary observers; 221 reports through the Southern Pacific Railway Company; 311 marine reports through the co-operation of the Hydrographic Office, Navy Department; 26 reports from Canadian stations; marine reports through the "New York Herald Weather Service"; monthly reports from local services established in all states and territories; and international simultaneous observations. Trustworthy newspaper extracts and special reports have also been used.

CHARACTERISTICS OF THE WEATHER FOR FEBRUARY, 1893.

The month was unusually cold over the greater part of the country. On the 1st stations in the Dakotas, Montana, and eastern Washington reported the lowest temperature on record for February. On that date a severe norther was attended by a fall in temperature of 40° to 60° in the Western and Southwestern States; the temperature fell 20° to 30° in one hour in northern Texas; and the line of zero temperature was carried to central Missouri. In Montana the cold of the first four days of February was unprecedented; at regular stations of the Weather Bureau the temperature ranged 28° to 45° below zero; and along the line of the Great Northern Railroad in western Montana temperature 50° to 60° below zero was reported. A second severe cold wave overspread the West and Southwest on the 6th, with a fall in temperature of 40° to 50° from the middle Mississippi valley to Oklahoma, and zero temperature to southern Missouri. Frost was reported in the interior of Florida as far south as Jupiter on the 23d, to the middle Gulf coast on the 8th, 13th, 20th, and 23d, and near Corpus Christi and San Antonio, Tex., on the 8th.

PRECIPITATION.

The monthly precipitation was generally in excess of the average amount for February over the eastern and extreme northwestern parts of the country and from Lake Superior over the middle and southern Rocky Mountain and plateau regions; elsewhere less than the usual amount of precipitation fell. At points in the upper Ohio valley, the Atlantic States, the middle and southern Rocky Mountain regions, and Washington the monthly precipitation was the greatest, and at stations in the Southwest it was the least ever noted for February. Over a great part of New England the snowfall was exceptionally heavy. In parts of the interior of New England the total depth of snowfall for the month was 40 to 60 inches, and in the mountain districts a depth of 70 to 80 inches was reported. In large areas in the Western States the snowfall was insufficient to afford protection to crops.

STORMS.

A notable thunderstorm, with sleet, snow, and temperature 18° below the freezing point, occurred at Saint Louis, Mo., the evening of the 1st. On the 5th and 6th a heavy snowstorm extended from Iowa over Minnesota, Wisconsin, and western Lower Michigan. A heavy snowstorm extended from central New England over New Hampshire and western Maine during the 13th and 14th. On the 17th and 18th gales and heavy snow prevailed from southern New England over eastern Pennsylvania. The storm continued over New York, Pennsylvania, and Maryland during the 19th, with thunderstorms in southern Pennsylvania and Maryland. On the 20th the snowstorm extended over New England, and heavy gales prevailed north of Hatteras, N. C. On the 21st destructive thunderstorms occurred in Alabama, Louisiana, and Texas. Heavy snow, with high winds, prevailed in New England, New York, and Pennsylvania on the 22d. On the 27th heavy snow, with thunderstorms, was reported in northern Iowa, and snow fell in Minnesota. On the 28th the snowstorm overspread Wisconsin and Upper Michigan, with destructive gales over Lake Michigan.

NAVIGATION.

Navigation on the Great Lakes and in the rivers of the middle and northern districts was practically closed throughout the month. In the middle Mississippi and Ohio rivers and tributaries, and in rivers and streams of the middle Atlantic states considerable damage was caused by ice gorges. In harbors and bays of the middle Atlantic and New England coasts heavy ice interfered with navigation.

FLOODS.

Floods were reported in streams of eastern Ohio, Pennsylvania, and New York the early part of the month. The night of the 9th floods occurred along the San Joaquin River and tributaries. The Ohio River passed above the danger-line from Parkersburg, W. Va., to Cairo, Ill., during the second decade of the month. At the close of the month the Ohio River was above the danger-line from Evansville, Ind., to Cairo. High water was reported in rivers and streams of Alabama, Georgia, and Tennessee.

ATMOSPHERIC PRESSURE (expressed in inches and hundredths).

The distribution of mean atmospheric pressure for February, 1893, as determined from observations taken daily at 8 a. m. and 8 p. m. (75th meridian time), is shown on Chart II by isobars.

Chart VIII exhibits the normal distribution of atmospheric pressure and prevailing wind-directions over the United States for February. The publication of the charts of this series is preliminary to the publication by the Weather Bureau of specially prepared data and charts showing meteorological and climatic features and conditions of the United States.

In February, 1893, the mean pressure was highest over eastern Tennessee and the interior of the south Atlantic states, and in an area extending from the middle Saskatchewan valley over the middle and upper Missouri valleys and the middle plateau region, where it was above 30.20. The mean pressure was lowest over the Gulf of Saint Lawrence, where it was below 29.95, and a mean reading of 29.95 was noted at Tatoosh Island, Wash.

In February there is usually a decrease of pressure over interior and southern districts, and an increase of pressure over northeast and northwest districts and the British Possessions.

A comparison of the pressure chart for February, 1893, with that of the preceding month shows a general increase of mean pressure east of the Rocky Mountains and along the middle and south Pacific coasts. From the north Pacific coast over the plateau region there was a decrease of mean pressure. The greatest increase of pressure occurred from the lower lake region to the middle Atlantic coast, where it exceeded .15. The most marked decrease was noted from the north Pacific coast over the middle plateau region, where the mean pressure was .10 lower than for January.

The mean pressure for February, 1893, was above the normal, except over the Canadian Maritime Provinces, the middle Gulf states, and Lake Superior, from the southern Rocky Mountain region to the south Pacific coast, and in northwestern Washington. The greatest departure above the normal was noted at Eureka, Cal., and Edmonton, N. W. T., where it was .10, and the mean values were more than .05 above the normal from northern California over the northeast slope of the Rocky Mountains and in areas in the central valleys, the southern lake region, and the middle and south Atlantic states. The most marked departure below the normal pressure, .10, was reported at Chatham, N. B., and the departure below the normal was more than .05 over the Canadian Maritime Provinces and on the extreme north Pacific coast.

HIGH AND LOW AREAS.

The paths of areas of high and low barometric pressure over the United States and Canada for February, 1893, are shown on Charts IV and I, respectively, and some of the prominent features of the areas are given in the table at the end of this chapter.

HIGH AREAS.

Twelve high areas appeared, the average number traced for February during the last 18 years being 8. Of the high areas traced for the current month 6 advanced from the British Northwest Territory, 3 first appeared in the Rocky Mountain region, 1 is traced from the region north of the upper lakes, 1 apparently developed over the Ohio Valley, and 1 occupied the middle Missouri valley at the opening of the month. The high areas from the British Northwest Territory and the Rocky Mountain region moved southeastward over the central valleys and thence eastward to the Atlantic coast. The average velocity of the high areas, 34 miles per hour, was about 6 miles per hour greater than the average velocity of high areas traced for February of preceding years. The highest pressure of the month was 31.24 (reduced), at Swift Current, N. W. T., the morning of the 3d; the morning report of that date showed pressure 31.04 (reduced) at Bismarck, N. Dak. The following is a description of the high areas whose tracks are plotted on Chart IV:

I.—Was a continuation of high area XI for January, 1893, and at the opening of the month occupied the Dakotas, with pressure 30.90 at Huron, S. Dak. By the evening of the 1st the high area had moved northeastward over Minnesota. On that date a fall in temperature of 30° to 40° was noted from northern Minnesota to northwestern Texas, the morning temperature was 40° to 44° below zero in North Dakota and eastern and northeastern Montana, the line of zero temperature was carried to southern Kansas and central Missouri, and a reading of 12° was reported at Abilene, Tex., in the evening. By the morning of the 2d the high area had passed north of Lake Superior, the temperature had fallen 30° to 40° over the interior of Texas, a fall of 20° to 30° occurred over the eastern lake region, at Dodge City, Kans., the temperature had fallen to 2° below zero, and the line of freezing weather reached east-central Texas. During the 2d and 3d this high area drifted eastward north of the River and Gulf of Saint Lawrence, with a slight fall in temperature over the middle Atlantic and New England states on the 2d, and a severe cold wave over Maine by the morning of the 3d, when the temperature fell to 4° below zero at Eastport, Me., a fall of 32° in 24 hours.

II.—With the eastward movement of high area I the pressure continued high and increased on the northeast slope of the Rocky Mountains, and on the 3d was above 31.00 in the Saskatchewan Valley, northern Montana, and North Dakota. At Bismarck, N. Dak., and Dubuque, Iowa, the pressure at the evening report, 31.02 and 30.96, respectively, was the highest on record. On that date a marked fall in temperature occurred from Minnesota to the north part of the east Gulf states, and the morning temperature fell to zero in northern Missouri. During the 4th this high area moved south of east over the upper lake region, and a cold wave swept over the Atlantic coast states, with a fall in temperature of 20°, or more, from the Carolinas to the south New England coast. The night of the 5th the high area passed off the New England coast.

III.—The pressure continued high on the northeast slope of the Rocky Mountains, and the evening of the 6th this high area occupied the region north of Montana, with pressure above 30.90. On that date a severe cold wave overspread districts between the Mississippi River and the Rocky Mountains, the line of zero temperature reached Hannibal, Mo., in the evening, and freezing weather was reported to Abilene, Tex. During the 7th the high area moved to the lower Missouri valley, with pressure above 30.90, the cold wave extended over the central valleys and the Lake region, and the line of freezing weather was carried south of San Antonio, Tex. On the 8th the high area moved eastward over the Ohio Valley, and the cold wave reached the Atlantic coast, with a fall in temperature of 20° to 30° from New England to the east Gulf coast. The morning of the 9th this high area passed eastward off the middle Atlantic coast.

IV.—Appeared north of Montana the evening of the 9th, passed thence to Manitoba by the evening of the 10th, thence to the northern part of the Ohio Valley by the evening of the 11th, attended on the 10th by a fall in temperature of 20° to 30° in the middle Mississippi valley, and on the 11th by a fall in temperature of 20° over the interior of the east Gulf states, and in eastern North Carolina, eastern Virginia, and Quebec. During the 12th this high area moved off the New England coast, with pressure above 30.60.

V.—Appeared over the upper Ohio valley on the 13th, following the passage of low area V northeastward along the Atlantic coast. During the 14th this high area moved southeastward over Virginia and disappeared off the North Carolina coast, its passage being attended by slight changes in temperature in the Atlantic coast states.

VI.—Appeared over Alberta the evening of the 12th, and during the 13th moved southeastward over Assiniboia with pressure above 30.60, and a fall in temperature of 30° in western South Dakota and western Nebraska. During the 14th the high area advanced to the middle Rocky Mountain region, and on the 15th disappeared by a decrease of pressure over the lower Missouri valley. On the 14th the temperature fell 20° to 30° from Texas to Minnesota, and on the 15th a temperature fall of 20° was noted from southeastern Texas to the middle Ohio valley.

VII.—Appeared over Manitoba the evening of the 15th, and the morning of the 16th was central north of Lake Superior with pressure above 30.50, and temperature 40° below zero at White River, Ont. The evening of the 16th this high area occupied the upper lake region, and the temperature had fallen 20° over northern Ontario and on the Maine coast. During the 17th the high area moved eastward over the Canadian Maritime Provinces, and the temperature fell 20° to 30° from eastern Pennsylvania to northeastern North Carolina.

VIII.—Occupied Manitoba the evening of the 19th, and advanced to Wisconsin by the morning of the 20th, with a temperature fall of 20° in areas in the Lake region and upper Mississippi valley. By the evening of the 20th the high area had moved to the upper Ohio valley, and the temperature had fallen 20° in the middle Ohio valley and on the Atlantic coast. During the 21st this high area passed off the middle Atlantic coast, with a fall in temperature of 20° in Maine.

IX.—Apparently moved southeastward from the middle plateau region, and the evening of the 21st occupied the southeast slope of the Rocky Mountains. During the 22d this high area moved rapidly eastward over the Gulf States, with a fall in temperature of 20° in the interior of Mississippi at the morning report, and a slight fall in temperature along the south Atlantic coast.

X.—Was apparently an offshoot of an area of high pressure which extended from the north Pacific coast over the middle plateau region on the 24th. The morning of the 25th this high area was central over Oklahoma. By the evening of the 26th the high area had reached the North Carolina coast, its passage being attended by a slight fall in temperature from the Ohio Valley to the middle and south Atlantic coasts.

XI.—The evening of the 26th, when high area X occupied the Carolina coast, a ridge of high pressure extended thence over the eastern lake region, and the morning of the 27th high area XI appeared north of Lake Ontario, with pressure above 30.50. By the evening of the 28th this high area had moved southeastward off the New England coast, with a slight fall in temperature in eastern New York and the interior of New England.

XII.—Apparently developed on the northeast slope of the Rocky Mountains, and the evening of the 27th occupied the middle Rocky Mountain region. By the evening of the 28th this high area had advanced to the middle Mississippi valley. On the 26th the temperature fell 10° to 20° on the northeast slope of the Rocky Mountains; on the 27th a fall in temperature of 20° to 30° was noted from northwestern Texas to western Missouri; and on the 28th a temperature fall of 10° to 20° occurred from eastern Texas to the western lake region.

LOW AREAS.

The average velocity of low areas for January and February, 37 statute miles per hour, is the greatest noted for the year. A principal track of February storms is traced from Montana eastward over the Lake region and Saint Lawrence Valley to southern Newfoundland, and less frequented tracks are traced from the middle-eastern slope of the Rocky Mountains and the west Gulf states to the Lake region, and from the south Atlantic coast to Nova Scotia. An average of about 2 low areas per month advance from the Pacific coast north of the 45th parallel and traverse the United States.

Twelve low areas appeared during February, 1893, the average number traced for the corresponding month of the last 18 years being 8. Two of the low areas advanced from the north Pacific coast, 3 from the British Northwest Territory, 2 from the southeast slope of the Rocky Mountains, 2 from the Gulf of Mexico, 2 from the Lake Superior region, and 1 from the upper Mississippi valley. The low areas from the north Pacific coast and the British Northwest Territory reached the Gulf of Saint Lawrence. One of the low areas from the southeast slope of the Rocky Mountains moved to Nova Scotia; the other disappeared north of Lake Superior. One of the low areas from the Gulf of Mexico passed northeastward over the lower Mississippi valley, and thence over the Lake region and northern New England; the other moved northeastward off the Atlantic coast. The low areas from the Lake Superior region and the upper Mississippi valley advanced eastward over the Canadian Maritime Provinces. The average velocity of the low areas was about 3 miles per hour greater than the average velocity of low areas traced for February of preceding years. The following is a description of the low areas whose tracks are plotted on Chart I:

I.—The night of the 1st–2d the pressure decreased rapidly in the Missouri Valley, and the evening report of the 2d showed the development of this low area near southern Lake Michigan. During the 2d a heavy snowstorm, with high northeast wind, prevailed over Wisconsin, and rain fell in the Ohio and middle and lower Mississippi valleys. By the morning of the 3d the storm-center had advanced to eastern Lake Ontario, and the temperature had risen 20° in the upper Ohio valley. By the evening report the center had reached the east Maine coast, with pressure below 29.90, from which point it passed rapidly eastward over Nova Scotia. During the 3d the snowstorm extended eastward over the Lake region, New York, and New England, with westerly gales of 40 to 50 miles per hour over the lower lakes and at Sault Ste. Marie, Mich., and Parry Sound, Ont., and rain or snow was quickly followed by clearing weather in the Ohio Valley.

II.—The morning of the 5th an area of low pressure occupied the middle Rocky Mountain and middle plateau regions, the barometer was low thence to the north Pacific coast, and an area of high barometer occupied the Saskatchewan Valley. By the evening report of the 5th the trough of low pressure had extended northeastward to Lake Superior and two areas of lower pressure appeared, one over Upper Michigan and the other over Colorado. By the morning of the 6th the high area in the Northwest, number III, had extended southeastward over the Missouri Valley, filling up the low area over Colorado and forcing low area II to Lower Michigan. By the evening of the 6th the center of disturbance had advanced to the middle Saint Lawrence valley, with pressure below 29.60. Heavy snow, with high northwest wind, set in over Iowa the night of the 5th and continued until the morning of the 6th. The snowstorm extended over Wisconsin and Lower Michigan during the 6th, and rain fell in the Atlantic coast states and Ohio Valley. During the 7th the storm-center passed over the Gulf of Saint Lawrence, with high southwest winds and rapidly clearing weather in the middle Atlantic and New England states.

III.—Appeared on the north Pacific coast the morning of the 8th with pressure below 29.60, and at the evening report was central near Salt Lake City, Utah. On that date heavy rain fell in the Pacific coast states and thence over the middle

plateau region, and unusually high winds prevailed over Nevada and eastern California. During the 9th this low area crossed the middle Rocky mountain region and passed thence to Wisconsin, the temperature rose 20° to 30° from Texas to the Great Lakes, and rain or snow fell generally east of the Missouri and lower Mississippi valleys. During the 10th the storm-center passed north of the Saint Lawrence River, with pressure below 29.30, the temperature rose 10° to 20° in the Atlantic coast states, rain fell generally east of the Mississippi River, the rainfall being heavy in New England and Tennessee, and westerly gales prevailed along the Atlantic coast from the Carolinas to Maine.

IV.—Occupied the north Pacific coast on the 11th, and during the 12th moved southeastward to Wyoming. On the 13th this low area divided, one part passing to South Dakota and the other to extreme southwest Kansas. On that date high winds and heavy snow were reported in the Missouri Valley, and rain fell in the West and Southwest. At Dodge City, Kans., a hailstorm moved northeast in the afternoon. By the night of the 14th the trough of low pressure which extended southward over the Western States on the 13th had contracted northward and the center of disturbance was north of Lake Huron; the rain area had extended eastward over the Ohio Valley and the Lake region. By the morning of the 15th the center had reached the northern part of the Gulf of Saint Lawrence, with pressure below 29.40.

V.—Appeared over the Gulf of Mexico on the 12th, and by the evening report of that date rain was falling in the south Atlantic and middle and east Gulf states; at 3.45 p. m. a heavy rain and hail-storm visited De Land, Fla. During the 13th the storm-center moved rapidly northeastward off the middle Atlantic coast, attended by northeast gales on the New Jersey and New England coasts, heavy rain, sleet, and snow in southern New England, and heavy snow at night in northern New England. By the morning of the 14th this low area had disappeared southeast of Nova Scotia.

VI.—Was probably a subsidiary development to low area IV, and the evening of the 14th occupied the lower Rio Grande valley, with pressure below 29.90, and rain in the Gulf States. During the 15th the center of disturbance moved slowly eastward over the west Gulf and heavy rain fell in the east Gulf and south Atlantic states. During the 16th the center moved northward over the lower Mississippi valley, the rain area extended to the Ohio River and Virginia, a severe snowstorm set in over northwestern Texas, and destructive local storms were reported in Mississippi and western Tennessee. On the 17th this low area advanced to Ohio, and at the evening report VI*a* appeared on the North Carolina coast. Rain changed to snow in the Ohio Valley, and northeast gales and heavy snow prevailed over the middle Atlantic states and on the south New England coast. The morning of the 18th number VI was central near eastern Lake Ontario and VI*a* was located near the southeast New England coast, the snowstorm had extended to western Maine, and severe northeast gales continued along the New England coast; along the middle Atlantic coast the wind had shifted to westerly. By the evening of the 18th numbers VI and VI*a* had united near Cape Breton Island.

VII.—Appeared over Alberta on the 14th, and remained nearly stationary in that region until the night of the 16th. During the 17th the low area advanced to northern Lake Superior, and snow fell from Missouri to Manitoba. By the morning of the 18th this low area had united near Lake Ontario with low area VI.

VIII.—Apparently advanced southeastward over Lake Superior, and the morning of the 19th was central over northern Lake Huron. By the evening of the 19th the center of disturbance had passed to central New York, with pressure below 29.20. On that date westerly gales, with heavy snow, prevailed over Lower Michigan and the lower lake region. Destructive gales prevailed to the North Carolina coast in the evening, with thunderstorms in southern Pennsylvania and Maryland. The night of the 19th a violent westerly gale, with snow, set in over eastern Pennsylvania, New Jersey, and western New England, and thunderstorms were noted in New Jersey. By the morning of the 20th this low area had advanced to Maine, with a marked increase in energy, a reading of 28.78 being reported at Portland, and by the evening report had reached Chatham, N. B., where the pressure was 28.76. Northwest gales continued along the Atlantic coast north of Hatteras, and a heavy snowstorm, with rapidly falling temperature, prevailed over New England during the morning. The winds continued high from the northwest along the New England coast the night of the 20th.

IX.—Appeared over Manitoba the morning of the 20th, and moved slowly southward over the Red River of the North Valley by the evening report, with snow in Minnesota and the eastern Dakotas. During the 21st this low area passed southeastward over the Lake region and united with number X over the upper Ohio valley, attended by heavy snow in southeastern Lower Michigan and northern Ohio.

X.—Was central near Abilene, Tex., the morning of the 20th, and by the evening report had advanced to southwestern Arkansas, with rain from northern New Mexico to western Arkansas. During the 21st the storm-center passed to the upper Ohio valley, with pressure falling to 29.58 at Pittsburg, Pa. Rain or snow fell generally east of the Missouri and Mississippi rivers, except in New England and eastern New York; in the Ohio Valley the snowfall was heavy. Westerly gales prevailed over the Gulf States, and local storms were reported in southern Alabama, northern Louisiana, and eastern Texas. During the 22d this low area advanced to western Nova Scotia, with pressure below 29.00, the snow area contracted over the Northeastern States, the snow drifted heavily in New York, New England, and parts of Pennsylvania, and severe gales prevailed along the middle Atlantic and New England coasts.

XI.—Appeared over Alberta on the 21st, with pressure below 29.70. During the 22d the center advanced to the Dakotas, and the evening of that date a trough of low pressure extended from Texas to Manitoba. The temperature rose 10° to 20° within the trough of low pressure, and snow fell in North Dakota. During the 23d the center advanced to Lake Erie, with pressure falling below 29.40, the temperature rose 20° in Tennessee, and the snow area extended over the Lake region, New York, and Massachusetts. By the evening of the 24th the center of disturbance had moved eastward off the Massachusetts coast and thence to the Gulf of Saint Lawrence, with pressure below 29.40, heavy snow was quickly followed by clearing weather in New England, and westerly gales prevailed on the south New England and New Jersey coasts.

XII.—Apparently developed over the middle Rocky Mountain region on the 25th, and the evening of the 26th was central near the extreme northwest corner of Texas. On that date rain set in over the Gulf States, and thunderstorms were reported on the middle Gulf coast in the early afternoon. During the 27th this low area rapidly increased in energy and advanced to the upper Mississippi valley, the temperature rose 20° in the western lake region, heavy rain fell in the Mississippi Valley and the east Gulf and south Atlantic states, and a heavy snowstorm set in over Iowa, Minnesota, and northwestern Wisconsin. By the night of the 28th the storm-center had passed northward over Lake Superior, with pressure 29.10 at Marquette, Mich., in the morning, heavy snow was followed in the morning by clearing weather in Minnesota, Wisconsin, and the northern lake region, and severe southwest gales prevailed over the Great Lakes.

Tabulated statement showing principal characteristics of areas of high and low pressure.

Barometer.	First observed.			Last observed.		Duration.	Velocity per hour.	Maximum pressure change in 12 hours, maximum abnormal temperature change in 12 hours, and maximum wind velocity.									
	Date.	Lat. N.	Long. W.	Lat. N.	Long. W.			Station.	Rise.	Date.	Station.	Fall.	Date.	Station.	Direction.	Miles per hour.	Date.
High areas.		°	°	°	°	*Days.*	*Miles.*		*Inch.*			°					
I	1	44	98	50	86	1.0	29	Duluth, Minn	.88	1	Abilene, Tex	57	1	Chicago, Ill	ne.	40	2
II	3	52	103	44	63	2.5	34	Fort Buford, N. Dak	.66	2	Moorhead, Minn	25	3	Cleveland, Ohio	nw.	48	4
III	6	51	112	40	73	2.5	40	Halifax, N. S	.62	8	Fort Smith, Ark	56	6	Hatteras, N. C	n.	36	8
IV	10	53	105	43	70	2.5	37	Father Point, Que	.68	11	Nashville, Tenn	26	10	....do	n.	24	12
V	13	40	80	35	74	1.0	21	New York, N. Y	.36	14	Atlanta, Ga	13	12	Atlanta, Ga	ne.	16	14
VI	13	54	113	39	98	2.0	31	Dodge City, Kans	.60	14	Kansas City, Mo	37	14	Fort Buford, N. Dak	nw.	30	13
VII	15	52	98	47	77	1.5	28	Qu'Appelle, N. W. T	.44	15	Rockliffe, Ont	21	16	Chicago, Ill	ne.	34	16
VIII	19	50	93	38	76	1.5	36	Buffalo, N. Y	.70	20	Cairo, Ill	22	20	....do	ne.	34	20
IX	21	35	102	34	85	1.0	50	Nantucket, Mass	.66	23	San Antonio, Tex	13	22	New Orleans, La	n.	26	22
X	25	37	98	35	75	1.5	39	Norfolk, Va	.44	26	Abilene, Tex	15	25	Hatteras, N. C	n.	20	26
XI	27	48	78	43	72	1.0	21	Chatham, N. B	.38	27	Albany, N. Y	17	28	Portland, Me	n.	26	27
XII	27	41	104	37	89	1.0	42	Hannibal, Mo	.60	28	Kansas City, Mo	37	27	Galveston, Tex	ne.	26	28
Mean	....	....	....	....	....	1.6	34	....	.58	....	....	28	....	....	....	30	....
Low areas.									Fall.			Rise.					
I	2	42	88	45	67	1.0	46	Huron, S. Dak	.54	2	Saint Louis, Mo	22	2	Woods Holl, Mass	nw.	51	3
II	5	47	88	47	65	1.5	36	Portland, Me	.66	6	Chatham, N. B	35	6	Erie, Pa	se.	46	6
III	8	41	113	50	69	2.0	50	....do	.74	10	Yankton, S. Dak	35	8	Keeler, Cal*	sw.	61	8
IV	11	48	125	50	65	3.5	42	Rockliffe, Ont	.66	14	Father Point, Que	26	15	Amarillo, Tex	s.	56	13
V	12	29	86	40	70	1.0	52	Block Island, R. I	.48	13	Jacksonville, Fla	10	13	Block Island, R. I	ne.	65	13
VI	14	27	98	45	60	4.0	27	....do	.62	18	Wilmington, N. C	22	15	Chicago, Ill	e.	54	17
VII	16	54	114	44	77	1.5	50	Port Arthur, Ont	.48	17	Parry Sound, Ont	24	17	Bismarck, N. Dak	nw.	34	17
VIII	19	46	84	48	66	1.5	31	Chatham, N. B	.66	20	Minnedosa, Man	20	18	Block Island, R. I	nw.	69	20
IX	20	52	100	40	81	1.5	36	Duluth, Minn	.36	20	Qu'Appelle, N. W. T	21	20	Swift Current, N. W. T	nw.	42	20
X	20	33	100	44	66	2.5	34	Block Island, R. I	.98	22	Pittsburg, Pa	20	21	Woods Holl, Mass	nw.	62	22
XI	21	53	113	47	61	3.0	41	Erie, Pa	.52	23	Chattanooga, Tenn	24	23	Cleveland, Ohio†	nw.	60	23
XII	26	36	103	51	87	2.0	30	White River, Ont	.70	28	Parry Sound, Ont	24	27	Chicago, Ill	sw.	60	28
Mean	....	....	....	....	....	2.1	40	....	.62	....	....	24	....	....	....	55	....

*82 miles sw., Pikes Peak, Colo., 9th.

†92 miles w., Pikes Peak, Colo., 22d.

NORTH ATLANTIC STORMS FOR FEBRUARY, 1893.

[*Pressure in inches and millimeters; wind-force by Beaufort scale.*]

The paths of storms that appeared over the west part of the north Atlantic Ocean during February, 1893, are shown on Chart I. These paths have been determined from reports of observations by shipmasters received through the co-operation of the Hydrographic Office, Navy Department, and the "New York Herald Weather Service."

Over the north Atlantic Ocean the February normal pressure is highest in a small area southwest of the Azores, where it is above 30.20 (767), and the normal values are above 30.10 (764) in a belt extending from the eastern part of the ocean between the 22d and 40th parallels to the coast of the United States. The February normal pressure is lowest in an elongated area extending from southeastern Greenland over Iceland and Spitzbergen, where it is below 29.50 (749).

In February there is usually a decrease of pressure over the north Atlantic Ocean, except near Newfoundland, and in an area south of the Azores. The most marked decrease occurs in an area extending from the British Isles to the 40th meridian, where it varies from .05 to .10 inch, and a decrease of more than .05 inch occurs in an area south of the Banks of Newfoundland. In the area of high pressure south and southwest of the Azores the increase of pressure is less than .05 inch.

The principal track of February storms over the north Atlantic Ocean is traced from south of Newfoundland north of east to the 40th meridian, where the track divides, one branch being traced northeastward toward Iceland and the other east-northeast to the region north of the British Isles. An average of about 2 storms per month traverse the ocean from the American continent to Europe in February, and the average velocity of ocean storms for the month, about 23 statute miles per hour, is the greatest noted for the year.

In February, 1893, no less than 7 storms traversed the ocean from the American continent to European waters. From the 1st to the 6th, 16th to 19th, and 26th to 28th storms of exceptional severity prevailed over mid-ocean, and on the 14th, 19th, and 21st the pressure fell to or below 29.00 (736) near the British Isles.

From the 1st to the 6th the pressure continued low from the Banks of Newfoundland over mid-ocean, and on the 4th and 5th the barometer fell below 29.00 (736) and southwest to northwest gales of hurricane force were reported between the 20th and 40th meridians. During the 7th and 8th the storm apparently advanced northeastward and disappeared in the direction of the Norwegian coast. On the 7th low area II passed eastward over the Gulf of Saint Lawrence and Newfoundland, and the morning of the 8th was central northeast of the Grand Banks. Advancing eastward this storm passed over the British Isles during the 11th.

On the 11th low area III was central north of Newfoundland, from which region the center moved to mid-ocean by the 12th, and on the 13th was located northwest of Ireland. By the 14th this storm showed a marked increase in energy, the barometer fell below 29.00 (736), and west to northwest gales of force 7 to 11 were encountered east of the 40th meridian. Remaining nearly stationary during the 14th and 15th the storm apparently moved eastward over or north of the British Isles during the 16th.

During the 13th low area V moved northeastward off the south and middle Atlantic coasts, and on the 14th was central south of Nova Scotia. On the 15th and 16th the storm moved slowly eastward, with pressure falling to about 29.20 (742) east of the Grand Banks on the latter-named date, and during the 17th and 18th occupied mid-ocean, with pressure falling to about 29.00 (736) and westerly gales of force 8 to 11 between the 30th and 50th meridians. On the 19th the storm was central west of Ireland, with pressure below 29.00 (736) and southwest gales of force 9 to 11 east of the 20th meridian. By the 20th the storm had apparently reached the North Sea.

The night of the 19–20th low area VI–VII passed eastward

from the Canadian Maritime Provinces, and the morning of the 19th was central east of the Banks of Newfoundland, with pressure about 29.10 (739) and strong to whole west to north gales over the Banks of Newfoundland. Crossing mid-ocean during the 20th, attended by severe gales, this storm reached the British Isles on the 21st, with very low pressure over the southern part of Great Britain, and heavy northwest gales east of the 30th meridian. By the 22d the storm-center had apparently passed over the North Sea. On the 20th low area VIII occupied Maine and New Brunswick, and on the 21st passed over the Gulf of Saint Lawrence. Moving rapidly eastward this storm apparently reached the Bay of Biscay on the 23d, and passed thence eastward by the 24th.

Low areas IX and X passed from the south New England coast to Newfoundland during the 22d and 23d, reached mid-ocean on the 24th, passed south of the British Isles on the 25th, and apparently moved eastward over the continent of Europe by the 26th. Low area XI advanced from the south New England coast to the Grand Banks during the 24th and 25th, occupied mid-ocean during the 26th and 27th, with pressure 29.20 (742) to 29.40 (744), and apparently reached the British Isles on the 28th. On the 26th a storm appeared over the Gulf of Saint Lawrence and the Canadian Maritime Provinces, and passed thence to a position east of the Grand Banks by the 27th. On the 28th this storm possessed great energy, and pressure falling to about 28.50 (724) and heavy gales were reported over mid-ocean.

OCEAN FOG FOR FEBRUARY.

The limits of fog belts west of the 40th meridian, as reported by shipmasters, are shown on Chart I by dotted shading. East of the 55th meridian fog was reported on 4 dates; between the 55th and 65th meridians on 1 date; and west of the 65th meridian on 5 dates. Compared with the corresponding month of the last 5 years the dates of occurrence of fog east of the 55th meridian numbered 7 less than the average; between the 55th and 65th meridians 4 less than the average; and west of the 65th meridian the same as the average. Dense fog was reported at New York, N. Y., on the 1st to 3d, 6th, 7th, and 13th; at Atlantic City, N. J., on the 3d; and at Block Island, R. I., and Nantucket, Mass., on the 10th.

OCEAN ICE IN FEBRUARY.

The following table shows the southern and eastern limits of the region within which icebergs or field ice were reported for February during the last 10 years:

Southern limit.			Eastern limit.		
Month.	Lat. N.	Long. W.	Month.	Lat. N.	Long. W.
	° ′	° ′		° ′	° ′
February, 1883	42 01	52 46	February, 1883	46 10	45 44
February, 1884	42 00	50 00	February, 1884	46 50	43 45
February, 1885	41 50	51 12	February, 1885	47 52	42 00
February, 1886	46 10	47 15	February, 1886	48 00	44 47
February, 1887	40 00	48 00	February, 1887	46 26	41 50
February, 1888	44 59	45 08	February, 1888	44 59	45 08
February, 1889	45 35	48 00	February, 1889	45 35	48 00
February, 1890	41 12	50 12	February, 1890	44 30	35 30
February, 1891	44 20	48 00	February, 1891	44 33	44 59
February, 1892	47 25	47 55	February, 1892	49 05	46 30
February, 1893	45 11	48 56	February, 1893	46 20	46 40
Mean	43 42	48 50	Mean	46 24	44 05

The region in which Arctic ice was reported for the current month is shown on Chart I by ruled shading. The southernmost ice reported, field ice, noted on the 23d, was about 1½° north of the average southern limit, and the easternmost ice noted, field ice observed on the 22d in the position given in the table, was about 2½° west of the average eastern limit of ice for February.

No icebergs were reported during the month. On the 13th and 20th field ice was encountered off the southeast Newfoundland coast. On the 15th, 17th to 25th, and 27th field ice was reported along the east edge of the Grand Banks north of the 45th parallel.

Ice in harbors and bays of the middle Atlantic and New England states interfered with navigation at intervals during the month.

TEMPERATURE OF THE AIR (expressed in degrees Fahrenheit).

The distribution of mean temperature over the United States and Canada for February, 1893, is exhibited on Chart II by dotted isotherms. In the table of miscellaneous meteorological data the monthly mean temperature and the departure from the normal are given for regular stations of the Weather Bureau. The figures opposite the names of the geographical districts in the columns for mean temperature and departure from the normal show, respectively, the averages for the several districts. The normal for any district may be found by adding the departure to the current mean when the temperature is below the normal and subtracting when above. The monthly mean temperature for regular stations of the Weather Bureau represents the mean of the maximum and minimum temperatures.

The mean temperature was highest over the southern part of the Florida Peninsula, where it was above 70. The mean values were above 60 generally over the Florida Peninsula, at points in southeastern Louisiana, in the lower Rio Grande valley, and in adjoining parts of southwestern Arizona and southeastern California. The mean temperature was lowest in Manitoba, Assiniboia, and north-central North Dakota, where it was 5 to 7 below zero; the mean readings were below zero in northern Minnesota and northern North Dakota; and were below 10 in the middle and lower Saint Lawrence valleys, over Georgian Bay and Lake Superior, and north of a line traced from north-central Wisconsin to north-central Iowa, and thence northwestward over central and northwestern Montana. At Climax, Colo., a mean of 9 was reported. North of a line traced from central New Jersey to the middle-eastern slope of the Rocky Mountains, thence to north-central New Mexico, thence over central Nevada to the Sierra Nevada Mountains, and thence over central Oregon and Washington the mean temperature was below 30.

DEPARTURE FROM NORMAL TEMPERATURE.

The mean temperature was below the normal, except over southern parts of the south Atlantic and middle and east Gulf states, and over the southern plateau region. The most marked departure below the normal temperature was noted on the northeast slope of the Rocky Mountains, where the mean readings were 7 to 10 lower than the February average. The departure below the normal was 7 in eastern Iowa, and was 4 to 6 from the upper Mississippi and Red River of the North valleys over the middle and northern plateau regions. The greatest departure above the normal temperature was reported on the middle coast of the Gulf of Mexico, where the month was 2 to 3 warmer than usual. The mean temperature was 2 above the normal at Southport, N. C., Charleston, S. C., and Yuma, Ariz.

The following table shows for certain stations, as reported by voluntary observers, (1) the normal temperature for February for a series of years; (2) the length of record during

which the observations have been taken, and from which the normal has been computed; (3) the mean temperature for February, 1893; (4) the departure of the current month from the normal; (5) and the extreme monthly mean for February during the period of observation and the years of occurrence:

State and station.	(1) Normal for the month of Feb.	(2) Length of record.	(3) Mean for Feb., 1893.	(4) Departure from normal.	(5) Extreme monthly mean for February.			
					Highest.	Year.	Lowest.	Year.
Arizona.	°	Years	°	°	°		°	
Fort Apache	39.7	21	42.2	+ 2.5	43.6	1879	32.4	1880
Fort Mohave	56.3	21	55.8	− 0.5	62.0	1879	50.2	1882
Whipple Barracks	39.0	21	40.4	+ 1.4	46.1	1879	30.0	1880
Arkansas.								
Keesees Ferry	41.2	11	36.9	− 4.3	49.9	1882	32.2	1885
California.								
Fort Bidwell	33.3	22	26.4	− 6.9	42.8	1886	25.3	1874
Riverside	52.3	11	50.4	− 1.9	58.0	1886	48.0	1891
Colorado.								
Las Animas	31.2	11	33.8	+ 2.6	37.9	1888	22.2	1883
Florida.								
Merritts Island	66.0	11	68.4	+ 2.4	72.6	1883	58.0	1889
Georgia.								
Forsyth	52.5	19	53.0	+ 0.5	59.6	1890	44.5	1885
Idaho.								
Boise Barracks	33.9	19	30.9	− 3.0	40.3	1888	21.3	1883
Fort Sherman	26.9	9	22.8	− 4.1	37.0	1886	17.0	1887
Indiana.								
Lafayette	29.3	13	27.7	− 1.6	38.0	1882	14.7	1885
Indian Territory.								
Fort Supply	36.7	14	32.0	− 4.7	44.1	1882	32.0	1883, 1893
Iowa.								
Cresco	15.8	21	9.3	− 6.5	31.3	1878	1.0	1875
Kansas.								
Eureka Ranch	30.4	10	28.0	− 2.4	37.6	1888	25.8	1885
Independence	35.8	21	31.4	− 4.4	45.7	1882	25.2	1885
Salina	30.6	10	28.2	− 2.4	37.0	1886	23.4	1885
Louisiana.								
Grand Coteau	59.4	10	59.5	+ 0.1	64.6	1887	52.4	1885
Maine.								
Orono	19.2	23	.....	.....	25.0	1877	13.3	1885
Maryland.								
Cumberland	31.5	22	31.8	+ 0.3	40.0	1890	25.2	1875
Michigan.								
Kalamazoo	26.2	17	21.3	− 4.9	35.0	1882	11.2	1885
Missouri.								
Sedalia	33.8	10	27.2	− 6.6	45.9	1882	20.7	1885
Montana.								
Fort Custer	19.2	11	12.0	− 7.2	30.2	1886	2.4	1887
Nebraska.								
Fort Robinson	24.7	9	23.2	− 1.5	33.7	1886	15.9	1891
Genoa (near)	22.2	17	19.8	− 2.4	32.8	1877	13.2	1891
Nevada.								
Browns	37.7	22	35.4	− 2.3	49.0	1872	24.8	1883
Carson City	34.0	16	33.3	− 0.7	42.2	1886	23.9	1883
New Hampshire.								
Hanover	18.8	22	17.6	− 1.2	25.4	1890	10.8	1885
New Mexico.								
Fort Wingate	33.5	22	34.6	+ 1.1	40.0	1879	26.0	1880
New York.								
Cooperstown	21.3	22	19.4	− 1.9	31.6	1880	10.5	1885
Plattsburg Barracks	18.2	22	13.8	− 4.4	25.7	1877	7.2	1885
North Carolina.								
Lenoir	40.6	20	41.9	+ 1.3	49.0	1890	30.3	1875
Oklahoma.								
Fort Reno	38.5	9	38.1	− 0.4	45.2	1890	33.0	1885
Fort Sill	42.8	21	37.2	− 5.6	47.8	1892	35.6	1885
Oregon.								
Bandon	44.0	9	45.0	+ 1.0	49.2	1889	38.8	1887
Pennsylvania.								
Dyberry	22.6	22	20.7	− 1.9	30.1	1890	13.4	1875
Grampian	25.1	22	23.5	− 1.6	33.8	1890	13.7	1885
Wellsboro	26.8	13	23.0	− 3.8	34.0	1890	16.7	1885
South Carolina.								
Statesburg	50.3	12	50.1	− 0.2	56.6	1890	41.8	1885
South Dakota.								
Fort Sully	17.2	22	13.1	− 4.1	33.4	1877	2.2	1887
Texas.								
Austin	54.8	21	48.8	− 6.0	60.6	1890	48.8	1893
Silver Falls	46.6	7	42.7	− 3.9	47.9	1886	41.0	1889
Utah.								
Terrace	30.6	20	24.0	− 6.6	40.7	1886	16.0	1882
Vermont.								
Strafford	18.5	19	15.0	− 3.5	25.7	1877	11.0	1885
Virginia.								
Dale Enterprise	37.0	13	34.4	− 2.6	44.8	1890	23.9	1885
Washington.								
Fort Townsend	40.1	21	35.9	− 4.2	47.0	1885	31.7	1887
West Virginia.								
Parkersburg	38.2	12	35.6	− 2.6	48.0	1882	30.1	1889
Wisconsin.								
Embarrass	16.7	21	.....	.....	30.7	1877	− 2.7	1875
Madison	21.0	22	15.0	− 6.0	33.5	1881	3.2	1875
Wyoming.								
Fort Washakie	22.4	10	20.7	− 1.7	35.8	1886	− 1.0	1883

TEMPERATURE, JANUARY AND FEBRUARY.

For the period January 1 to February 28, 1893, the temperature averaged 5 to 6 below the normal in the middle Atlantic and New England states, the Lake region, and upper Mississippi valley, and was 2 to 4 below the normal in the south Atlantic states, at Key West, Fla., in the Ohio Valley and Tennessee, in the Missouri Valley, on the middle-eastern slope of the Rocky Mountains, over the middle and northern plateau regions, and along the middle and north Pacific coasts. In the extreme northwest, over the southern plateau region, and along the south Pacific coast the mean temperature was about 2 above the normal. In the Gulf States and on the northeast and southeast slopes of the Rocky Mountains the mean temperature averaged about normal for the period named.

YEARS OF HIGHEST MEAN TEMPERATURE FOR FEBRUARY.

The highest mean temperature for February was noted at Jacksonville, Fla., in 1891; in the middle and south Atlantic and New England states, in the interior of the middle and east Gulf states, and on the west Gulf coast in 1890; over the northern plateau region in 1888; on the middle Gulf coast in 1887; along the middle and south Pacific coasts in 1886; along the north Pacific coast in 1885; from the eastern lake region over the Ohio, middle Mississippi, and lower Missouri valleys to the lower Rio Grande valley in 1882; in northern Wisconsin and Upper Michigan in 1878; and in the middle Missouri valley, Minnesota, and on the Maine coast in 1877.

YEARS OF LOWEST MEAN TEMPERATURE FOR FEBRUARY.

At Abilene and Austin, Tex., the mean temperature for the current month was the lowest noted for February during the respective periods of observation. The lowest mean temperature for February was noted along the south part of the Atlantic coast in 1889; along the middle and north Pacific coasts, and from the north Pacific coast to the Dakotas in 1887; from the eastern Rocky Mountain slope eastward, south of the 40th parallel, to the Atlantic coast (save along the south part of the south Atlantic coast), and in New York and southern New England in 1885; in the valley of the Red River of the North in 1884; in northern Utah and Wyoming and thence to western Kansas and western Nebraska in 1883; from the south Pacific coast over the southern plateau region in 1882; and from the middle Missouri valley over the Lake region and northern New England in 1875.

MAXIMUM TEMPERATURE.

At Corpus Christi, Tex., the maximum temperature for the current month, 88, noted on the 27th, was the highest ever recorded at that station in February, and was the highest temperature reported by a regular station of the Weather Bureau in February, 1893. The maximum values were above 85 on the east Florida coast on the 28th, and reached 87 in the lower Colorado valley on the 19th. South of a line traced from southeastern Virginia to extreme northwestern Texas, thence to southern New Mexico, and thence to the middle California coast the maximum temperature was above 70. At Saint Vincent, Minn., the maximum temperature was 30, and the maximum readings were below 40 generally in Minnesota and North Dakota, and at points in the northern lake region.

MINIMUM TEMPERATURE.

At Moorhead, Minn., Huron, S. Dak., Bismarck and Fort Buford, N. Dak., Helena, Mont., and Walla Walla, Wash., the minimum temperature for the current month, noted on the 1st, was the lowest reported for February during the respective periods of observation.

The lowest temperature noted at a regular station of the Weather Bureau in February, 1893, was 46 below zero at Fort Buford, N. Dak., on the 1st. The minimum values were generally below —40 over North Dakota and Montana, and the line of zero temperature is traced from the Massachusetts

coast south of west to southern Missouri, northern Oklahoma, and northern New Mexico, thence to central and northwestern Nevada, and thence over central Oregon and central Washington. The minimum temperature was highest, 59, at Key West, Fla., and the minimum values were 40 to 45 over the Florida Peninsula. At Port Eads, La., a reading of 49 was recorded, and at San Diego, Cal., the lowest temperature of the month, 40, was registered on the 20th.

LIMITS OF FREEZING WEATHER.

The southern limit of freezing weather is shown on Chart V by a line traced from Southport, N. C., over the central parts of the east Gulf states, southern Mississippi, central Louisiana, and thence inside the Texas coast line to the Rio Grande River. The western limit of freezing weather is traced from the Pacific coast in about latitude north 39°, southeastward inside the coast line to about the 35th parallel, thence eastward over southern California, and thence southward to Yuma, Ariz.

In the preceding month the line of freezing weather crossed the Florida Peninsula south of Titusville and Tampa, and was traced just inside the west Gulf coast line. On the Pacific coast the limit of freezing weather was about 3° farther north in January, 1893.

RANGES OF TEMPERATURE.

The greatest daily range of temperature is shown in the table of miscellaneous meteorological data. The greatest monthly range of temperature, 93, occurred at Miles City, Mont. From Montana the monthly ranges decreased eastward to less than 50 on the immediate south New England and middle Atlantic coasts, and to less than 40 at points on the south Atlantic coast, southeastward to less than 30 over extreme southern Florida and extreme southern Louisiana, southward to less than 50 over the southern plateau region, and westward to less than 30 along the immediate middle Pacific coast.

COLD WAVES.

The month opened with temperature 40 to 45 below zero in Montana and North Dakota, and zero temperature to northern Missouri. During the 1st the temperature fell 50 in the Southwest and 40 over Lake Superior, the line of zero temperature reached southern Kansas, and the evening temperature at Abilene, Tex., was 12. By the morning of the 2d the temperature had fallen 30 to 40 over the interior of Texas, 20 to 30 over the eastern lake region, and a reading of —2 was reported at Dodge City, Kans. The evening of the 2d a slight fall in temperature was shown over the middle Atlantic and New England states. By the morning of the 3d a temperature fall of 20 to 30 was noted over Maine, and a reading of —2 was recorded at Eastport.

A cold wave advanced from the upper Missouri valley to the Atlantic coast from the 2d to the 4th, attended by a fall in temperature of 20 to 30 in the upper Mississippi and Ohio valleys, the Lake region, and the Atlantic coast states from southern New England to the Carolinas. A cold wave of marked severity advanced from the middle-eastern slope of the Rocky Mountains to the Atlantic coast from the 5th to the 8th, with a temperature fall of 40 to 50 in the middle Mississippi and lower Missouri valleys, a fall of 20 to 30 in the Ohio Valley and the east Gulf and Atlantic coast states, zero temperature to southern Missouri, and freezing weather south of San Antonio, Tex.

A moderate cold wave overspread the middle Mississippi valley and the region north of Lake Superior on the 10th, and reached the east Gulf and south Atlantic states and Quebec during the 11th. A cold wave appeared over the middle Missouri valley on the 13th, and overspread the central valleys as a moderate cold wave during the 14th and 15th. The morning of the 16th a fall in temperature of 20 to 30 was shown in the region north of Lake Superior; by the evening report of the 16th the cold wave had extended over northern Ontario and northern New England; and on the 17th a temperature fall of 20 to 30 occurred along the middle Atlantic coast.

A cold wave advanced from the region north of Lake Superior to the middle Atlantic and New England coasts from the 19th to the 21st, attended by a fall in temperature of about 20. From the 26th to the 28th a cold wave advanced from the northeast slope of the Rocky Mountains over the central valleys, with a temperature fall of 20 to 30 in the Western and Southwestern States, and a fall of 10 to 20 from eastern Texas to the western lake region.

FROST.

Frost was reported at points in the interior of the Florida Peninsula as far south as Jupiter on the 23d; at Mobile, Ala., on the 20th and 23d; in southern Louisiana on the 8th and 13th; in the vicinity of Corpus Christi, Tex., on the 8th; and at San Antonio, Tex., on the 7th and 8th. At Bakersfield, Kern county, Cal., frost was noted on the 2d, 6th, 14th to 18th, 24th, 27th, and 28th; at Fresno, Cal., on the 14th, 16th, 18th, 24th, 27th, and 28th; and at San Francisco, Cal., on the 15th.

PRECIPITATION (expressed in inches and hundredths).

The distribution of precipitation over the United States and Canada for February, 1893, as determined from reports of more than 2,000 stations, is exhibited on Chart III. In the table of miscellaneous meteorological data the total precipitation and the departure from the normal are given for regular stations of the Weather Bureau. The figures opposite the names of the geographical districts in the columns for precipitation and departure from the normal show, respectively, the averages for the several districts. The normal for any district may be found by adding the departure to the current mean when the precipitation is below the normal and subtracting when above.

In February the normal precipitation is usually greatest on the extreme north Pacific coast, where it exceeds 11.00 at Neah Bay, Wash. In areas on the immediate Pacific coast north of the 42d parallel, and along the line of the Central Pacific Railroad crossing the summit of the Sierra Nevada Mountains in California, the average precipitation for February exceeds 8.00, and it is 4.00 to 6.00 generally along the Pacific coast and in the central valleys of California north of the 38th parallel. In an area extending southward over central Utah and in the mountains of Colorado the normal amount is 2.00 to 4.00.

East of the Rocky Mountains the greatest precipitation for February is generally noted over a great part of the Gulf states east of the 95th meridian, and in parts of southern Tennessee, where it exceeds 6.00, and the normal amount exceeds 4.00 in the Gulf States, Kentucky, Tennessee, the interior of the south Atlantic states, over the southwest and northern parts of the Florida Peninsula, and along the Atlantic coast from North Carolina to the Gulf of Saint Lawrence.

Over the greater part of the Rocky Mountain and plateau region the February precipitation is usually less than 1.00 and in large areas in that district it is less than 0.50. The average amount is less than 2.00 from Lake Superior westward

and southwestward to the eastern Rocky Mountain slope, and thence southward to the Rio Grande River.

In February, 1893, the monthly precipitation exceeded 10.00 along the immediate Oregon and Washington coasts. 10.00, or more, was also reported at Edmanton, in the Sierra Nevada Mountains, California, and at points in northeastern Alabama, southeastern Tennessee, and extreme western North Carolina. At stations on the middle and northern California coasts, in eastern California between the 38th and 41st parallels, in areas covering east-central Mississippi, central Alabama, southeastern Tennessee, and northern Georgia, and at points in central and southeastern New England and southeastern New York the monthly amount exceeded 8.00.

In the Atlantic coast states from southern New Hampshire and southern Vermont to the northern part of the Florida Peninsula, from the southern lake region to the middle and east Gulf coasts, and in the mountains of Colorado, the precipitation exceeded 4.00, and in central and southern New England, southeastern New York, northeastern Pennsylvania, in an area extending from southern Virginia and the interior of North Carolina over interior and northern parts of the south Atlantic and east Gulf states, in a strip extending from Jacksonville, Fla., southwestward over the Florida Peninsula, and at Corpus Christi, Tex., the monthly amount exceeded 6.00.

From the Rocky Mountains to about the 95th meridian, over the southern plateau, and in an area extending from central Nevada and northwestern Utah over a part of eastern and central Oregon the precipitation was generally less than 1.00, and over the west part of the southern plateau region it was less than 0.25.

DEPARTURE FROM NORMAL PRECIPITATION.

The monthly precipitation was in excess of the normal amount in the middle and upper Ohio valleys and the eastern lake region, in the Atlantic coast states, except along the immediate Carolina coast, in an area extending from Minnesota and Wisconsin over the middle and southern plateau regions, and on the north Pacific coast. The monthly precipitation was less than the February average over the Canadian Maritime Provinces, the lower Saint Lawrence valley, in an area extending from northern Lower Michigan over the Mississippi Valley and the Southwest, along the middle and south Atlantic coasts, and in an area extending from northern California over eastern Oregon, central Idaho, Montana, and North Dakota. The greatest excess in monthly precipitation was noted on the north Pacific coast near the mouth of the Columbia River, where it was 4.00 to 5.00; at Columbus, Ohio, Jacksonville, Fla., and Charlotte, N. C., the precipitation was 3.00 to 4.00 greater than the normal amount for February. The most marked deficiency was reported in northwestern Louisiana and east-central Texas, where the monthly precipitation was 2.00 to 3.00 less than the normal amount.

Considered by districts the average percentage of the normal in districts where the monthly precipitation was in excess was about as follows: middle plateau region, 177; northern plateau region, 139; middle Atlantic states, 138; north Pacific coast, 136; New England and the Ohio Valley and Tennessee, 135; lower lake region, 133; south Atlantic states, 124. In districts where the precipitation was deficient the percentage of the normal was about as follows: south Pacific coast, 48; Key West, Fla., 54; west Gulf states, 63; extreme northwest and middle-eastern slope of the Rocky Mountains, 83; middle Pacific coast, 84. In the east Gulf states, the upper Mississippi and Missouri valleys, the upper lake region, on the northeast and southeast slopes of the Rocky Mountains, and over the middle plateau region the monthly precipitation averaged about normal.

The following table shows for certain stations, as reported by voluntary observers, (1) the average precipitation for February for a series of years; (2) the length of record during which the observations have been taken and from which the average has been computed; (3) the total precipitation for February, 1893; (4) the departure of the current month from the average; (5) and the extremes for February during the period of observation and the years of occurrence:

State and station.	(1) Average for the month of Feb.	(2) Length of record.	(3) Total for Feb., 1893.	(4) Departure from average.	(5) Extremes for February.			
					Greatest.		Least.	
					Am't.	Year.	Am't.	Year.
Arizona.	*Inches.*	*Years*	*Inches.*	*Inches.*	*Inches.*		*Inches*	
Fort Apache	1.94	17	1.10	− 0.84	4.10	1891	0.89	1889
Fort Mohave	0.95	21	T.	− 0.95	5.00	1874	0.00	*
Whipple Barracks	1.91	21	0.47	− 1.44	0.55	1884	0.01	1876
Arkansas.								
Keesees Ferry	4.47	11	4.20	− 0.27	10.93	1884	1.24	1892
California.								
Fort Bidwell	2.37	22	2.92	+ 0.55	6.00	1881	0.00	1879
Riverside	2.62	12	1.84	− 0.78	7.94	1884	0.00	1885
Colorado.								
Las Animas	0.28	11	0.10	− 0.18	0.59	1888	0.00	1891
Florida.								
Merritts Island	2.70	15	4.23	+ 1.53	6.01	1888	0.15	1882
Georgia.								
Forsyth	4.59	19	7.65	+ 3.06	8.11	1891	1.19	1879
Idaho.								
Boise Barracks	1.69	19	1.79	+ 0.10	6.49	1872	T.	1889
Fort Sherman	2.11	10	4.25	+ 2.14	5.81	1890	0.42	1889
Indiana.								
Lafayette	3.18	13	4.84	+ 1.66	7.43	1883	1.20	1889
Indian Territory.								
Fort Supply	0.85	14	0.62	− 0.23	3.06	1874	0.00	1887
Iowa.								
Cresco	1.01	21	1.23	+ 0.22	1.88	1887	0.07	1877
Kansas.								
Independence	2.23	21	0.54	− 1.69	7.04	1881	0.25	1872
Salina	0.70	10	0.13	− 0.57	2.01	1892	T.	1891
Louisiana.								
Grand Coteau	3.39	10	2.03	− 1.36	8.42	1891	1.37	1886
Maine.								
Orono	4.01	23	.....	.....	8.39	1876	1.20	1877
Maryland.								
Cumberland	2.59	20	3.58	+ 0.99	4.92	1882	0.60	1877
Michigan.								
Kalamazoo	2.66	17	2.35	− 0.31	5.44	1881	0.12	1877
Missouri.								
Sedalia	2.71	14	1.63	− 1.08	6.42	1892	0.65	1879
Montana.								
Fort Custer	0.46	13	0.72	+ 0.26	1.29	1885	0.02	1882
Nebraska.								
Fort Robinson	0.62	9	0.26	− 0.36	1.12	1885	0.19	1892
Genoa (near)	0.81	17	1.03	+ 0.22	2.55	1891	0.10	1889
Nevada.								
Browns	0.56	22	0.88	+ 0.32	2.05	1872	0.00	1882, 1889
Carson City	1.35	16	2.42	+ 1.07	4.18	1891	0.08	1877
New Hampshire.								
Hanover	2.33	21	6.43	+ 4.10	7.67	1887	1.20	1875
New Mexico.								
Deming	0.46	10	0.59	+ 0.13	1.78	1888	0.00	1883, 1890
Fort Wingate	1.70	22	0.63	− 1.07	11.20	1873	0.05	1881
New York.								
Cooperstown	2.23	22	4.99	+ 2.76	5.21	1887	0.63	1877
Plattsburg Barracks	1.39	22	1.54	+ 0.15	2.69	1880	0.20	1888
North Carolina.								
Lenoir	4.28	21	5.20	+ 0.92	9.00	1873	0.60	1877
Oklahoma.								
Fort Reno	1.14	8	0.72	− 0.42	2.84	1889	0.13	1891
Fort Sill	1.24	21	1.17	− 0.07	3.45	1881	T.	1876
Oregon.								
Bandon	8.75	15	13.01	+ 4.26	17.82	1881	3.11	1892
Pennsylvania.								
Dyberry	2.73	22	6.58	+ 3.85	6.58	1893	0.60	1877
Grampian	3.61	21	6.77	+ 3.16	7.62	1887	1.56	1872
Wellsboro	5.40	13	6.55	+ 1.15	10.93	1884	0.95	1887
South Carolina.								
Statesburg	2.89	11	5.03	+ 2.14	5.47	1889	1.18	1883
South Dakota.								
Fort Sully	0.42	22	0.60	+ 0.18	1.50	1871	0.03	1877
Texas.								
Austin	2.62	21	T.	− 2.62	7.22	1888	T.	1885, 1893
Silver Falls	0.71	6	1.29	+ 0.58	2.07	1887	T.	1891
Utah.								
Terrace	0.34	18	1.20	+ 0.86	1.30	1881	0.00	†
Vermont.								
Strafford	2.83	19	5.10	+ 2.27	5.90	1887	0.30	1877
Virginia.								
Dale Enterprise	3.28	13	4.47	+ 1.19	9.00	1884	0.83	1882
Washington.								
Fort Townsend	1.85	18	3.36	+ 1.51	3.94	1879	0.37	1886
West Virginia.								
Parkersburg	3.81	8	3.28	− 0.53	7.42	1887	1.40	1886
Wisconsin.								
Embarrass	2.31	22	.....	.....	4.70	1887	0.35	1877
Madison	1.73	22	1.04	− 0.69	5.42	1881	0.30	1877
Wyoming.								
Fort Washakie	0.31	10	0.54	+ 0.23	1.04	1881	0.04	1882

*Freqently. †1875, 1876, 1889.

PRECIPITATION, JANUARY AND FEBRUARY, 1893.

For the period January 1 to February 28, 1893, the precipitation averaged about normal in the middle Atlantic and New England states, at Key West, Fla., in the Lake region, and on the northeast slope of the Rocky Mountains. Over the middle plateau region and in the extreme northwest the precipitation was one-fourth to one-half greater than usual. In the west Gulf states and on the middle-eastern slope of the Rocky Mountains the precipitation was about one-half, and in the south Atlantic and east Gulf states, the Ohio Valley and Tennessee, the upper Mississippi and Missouri valleys, on the southeast slope of the Rocky Mountains, over the southern and northern plateau regions, and along the Pacific coast the precipitation was seven-tenths to nine-tenths of the normal amount for the period named.

YEARS OF GREATEST PRECIPITATION FOR FEBRUARY.

At Woods Holl, Mass., New York and Albany, N. Y., Dyberry, Pa., Charlotte, N. C., Columbus, Ohio, Escanaba, Mich., Fort Stanton, N. Mex., Montrose, Colo., Spokane and Fort Canby, Wash., the precipitation for the current month was the greatest noted for February during the respective periods of observation.

In the upper Ohio valley and at Lake Erie stations the greatest precipitation for February occurred in 1887; in the middle Ohio valley, Maine, and from New Jersey southwestward over central North Carolina, on the south Pacific coast, and over the west part of the southern plateau region in 1884; in the middle Mississippi and lower Ohio valleys in 1882; from the southeast slope of the Rocky Mountains to the upper Mississippi and Red River of the North valleys, and over the northern plateau region and the west part of the middle plateau region in 1881; on the middle Pacific coast in 1878; in the lower Rio Grande valley in 1877; and along the south Atlantic coast in 1874.

YEARS OF LEAST PRECIPITATION FOR FEBRUARY.

At Shreveport, La., and Palestine, Tex., the monthly precipitation was the least ever reported for February.

Over the northern plateau region and generally on the north Pacific coast the least precipitation for February occurred in 1889; along the middle Pacific coast in 1886; along the south Pacific coast in 1885; in the lower Rio Grande valley in 1884; in southern Arizona in 1881; and in the middle and upper Mississippi valleys, the middle and lower Ohio valleys, the Lake region, New York, New England, and Virginia in 1877.

EXCESSIVE PRECIPITATION.

The following tables show, by states, the number of stations reporting monthly precipitation to equal or exceed 10.00; precipitation to equal or exceed 2.50 in 24 hours; and precipitation to equal or exceed 1.00 in 1 hour in February, 1893:

Monthly precipitation to equal or exceed 10.00.

State.	Number of stations.	State.	Number of stations.
Oregon	5	California	1
Washington	5	North Carolina	1
Alabama	2	Tennessee	1

Precipitation to equal or exceed 2.50 *in* 24 *hours.*

State.	Number of stations.	Dates.	State.	Number of stations.	Dates.
Alabama	14	14-15, 15, 15-16, 28.	Florida	9	4, 4-5, 5, 12, 12-13, 13.
California	10	3-4, 4, 9.			

Precipitation to equal or exceed 2.50 *in* 24 *hours*—Continued.

State.	Number of stations.	Dates.	State.	Number of stations.	Dates.
Tennessee	8	10, 15-16, 16, 16-17, 19.	Arkansas	1	16.
Georgia	7	14-15, 27, 27-28.	Kentucky	1	13.
Louisiana	3	11-12, 14, 26.	Massachusetts	1	22.
Oregon	3	11.	North Carolina	1	12-13.
Mississippi	2	16-17, 17.	Texas	1	3.
New York	2	6-7, 21-22.	Washington	1	2-3.

Precipitation to equal or exceed 1.00 *in* 1 *hour.*

Texas	2	3, 20.	Mississippi	1	27.
Florida	2	25, 28.	Tennessee	1	16.

Table of excessive precipitation, February, 1893.

State and station.	Monthly rainfall 10 inches, or more.	Rainfall 2.50 inches, or more, in 24 hours.		Rainfall 1 inch, or more, in one hour.		
		Amt.	Day.	Amt.	Time.	Day.
Alabama.	*Inches.*	*Inches.*		*Inches*	*h. m.*	
Demopolis		2.50	15-16			
Gadsden		3.63	15			
Geneva		2.95	28			
Greensboro		3.95	15			
Livingston a		4.21	15			
Livingston b		4.02	15			
Lock No. 4		4.00	15-16			
Maple Grove		3.10	15			
Maysville	11.78					
Newbern		2.50	15			
Oxanna		4.41	15-16			
Talladega		4.00	15-16			
Tuscaloosa		4.20	15-16			
Union	10.45	4.10	14-15			
Wilsonville		3.00	15-16			
Arkansas.						
Osceola		3.30	16			
California.						
Cloverdale		2.84	4			
Edmanton	13.07	3.90	3			
Fall Brook		2.70	9			
Fouts Springs		3.30	4			
Glendora		3.18	9			
Healdsburg		3.90	3-4			
Independence		2.63	9			
Middletown		4.45	4			
Nevada City		3.57	4			
San Luis Obispo		2.90	9			
Florida.						
Amelia		3.00	13			
Brooksville		3.10	13			
Clermont		3.45	12-13			
Federal Point		5.52	4-5			
Green Cove Springs		3.00	4			
Jacksonville				1.05	1 00	28
Jupiter		2.60	25	1.15	0 42	25
Manatee		3.00	25			
Oxford		3.00	12			
Saint Francis Barracks		3.10	5			
Georgia.						
Albany		3.00	27			
Blakely		3.65	27-28			
Homerville		2.75	27			
Morgan		2.52	27			
Mount Vernon		2.64	28			
Rome		3.50	14-15			
Savannah		2.67	27-28			
Kentucky.						
Williamsburg		2.79	13			
Louisiana.						
Farmersville		3.00	14			
New Orleans		2.72	11-12			
Port Eads		4.06	26			
Massachusetts.						
Wakefield		3.05	23			
Mississippi.						
Aberdeen		2.50	17			
Corinth		2.90	16-17			
Meridian				1.00	1 00	27
New York.						
Boyds Corners		2.60	21-22			
Eden Center		2.84	6-7			
North Carolina.						
Douglas		2.60	12-13			
Highlands	11.37					
Oregon.						
Astoria	12.42					
Bandon	13.01	2.62	11			
Cascade Locks		2.59	11			
Gardiner	10.74					
Glenora	19.97	3.35	11			
Langlois	13.44					
Tennessee.						
Bethel Springs		3.20	19			
Covington a		3.14	16-17			

Table of excessive precipitation—Continued.

State and station.	Monthly rainfall 10 inches, or more.	Rainfall 2.50 inches, or more, in 24 hours.		Rainfall 1 inch, or more, in one hour.		
		Amt.	Day.	Amt.	Time.	Day.
Tennessee—Continued.	*Inches.*	*Inches.*		*Inches*	*h. m.*	
Dunlap	10.91	2.74	10	.....	.....	.....
Lynnville	.....	5.15	16-17	.....	.....	.....
Memphis	.....	2.81	16-17	1.15	1 00	16
Rockwood	.....	2.53	16-17	.....	.....	.....
Savannah	.....	2.77	16	.....	.....	.....
Waynesboro	.....	2.65	15-16	.....	.....	.....
Texas.						
Corpus Christi	.....	5.80	3	1.25	0 50	3
Mountain Springs	.....	.....	.....	1.37	1 00	20
Washington.						
Aberdeen	10.46	.....	.....	.....	.....	.....
East Clallam	14.60	2.70	2-3	.....	.....	.....
Fort Canby	11.66	.....	.....	.....	.....	.....
Neah Bay	11.83	.....	.....	.....	.....	.....
Tatoosh Island	11.64	.....	.....	.....	.....	.....

MAXIMUM RAINFALL IN ONE HOUR OR LESS.

The following table is a record of the heaviest rainfall during February, 1893, for periods of five and ten minutes and one hour, as reported by regular stations of the Weather Bureau furnished with self-registering gauges:

Maximum rainfall in one hour or less.

Station.	Maximum fall in—					
	5 min.	Date.	10 min.	Date.	1 hour.	Date.
	Inch.		*Inch.*		*Inch.*	
Atlanta, Ga	0.10	15, 27	0.15	15	0.45	15
Bismarck, N. Dak *	.....	.....	.....	.....	.....	.....
Boston, Mass *	.....	.....	.....	.....	.....	.....
Buffalo, N. Y *	.....	.....	.....	.....	.....	.....
Cincinnati, Ohio	0.10	14	0.15	14	0.35	14
Chicago, Ill *	.....	.....	.....	.....	.....	.....
Cleveland, Ohio *	.....	.....	.....	.....	.....	.....
Denver, Colo *	.....	.....	.....	.....	.....	.....
Detroit, Mich *	.....	.....	.....	.....	.....	.....
Dodge City, Kans *	.....	.....	.....	.....	.....	.....
Duluth, Minn *	.....	.....	.....	.....	.....	.....
Eastport, Me *	.....	.....	.....	.....	.....	.....
Galveston, Tex	0.15	21	0.17	21	0.30	3
Indianapolis, Ind *	.....	.....	.....	.....	.....	.....
Jacksonville, Fla	0.25	28	0.45	28	1.05	28
Jupiter, Fla	0.45	25	0.75	25	1.15	25
Kansas City, Mo	0.05	27	0.08	27	0.35	27
Key West, Fla	0.05	13	0.09	13	0.18	13
Marquette, Mich *	.....	.....	.....	.....	.....	.....
Memphis, Tenn	0.20	16	0.30	16	1.15	16
Milwaukee, Wis *	.....	.....	.....	.....	.....	.....
New Orleans, La	0.08	11	0.11	11	0.33	26
New York, N. Y *	.....	.....	.....	.....	.....	.....
Norfolk, Va	0.10	17	0.18	17	0.37	17
Philadelphia, Pa *	.....	.....	.....	.....	.....	.....
Pittsburg, Pa †	.....	.....	.....	.....	.....	.....
Portland, Oregon *	0.02	12	0.04	12	0.14	11
Saint Louis, Mo *	0.10	14	0.12	14	0.16	14
Saint Paul, Minn *	.....	.....	.....	.....	.....	.....
Salt Lake City, Utah *	.....	.....	.....	.....	.....	.....
San Diego, Cal	0.01	9	0.02	9	0.10	9
San Francisco, Cal †	.....	.....	.....	.....	.....	.....
Savannah, Ga	0.14	28	0.20	27	0.72	27
Tampa, Fla	.....	.....	.....	.....	.....	.....
Washington, D. C *	0.04	10	0.06	10	0.20	10
Wilmington, N. C	0.10	13	0.14	13	0.38	13

* Record incomplete on account of snow.
† Self-register out of order.

The following tables show the number of years for which monthly precipitation to equal or exceed 10.00 inches, daily precipitation to equal or exceed 2.50 inches, and hourly precipitation to equal or exceed 1.00 inch has been reported in the several states and territories for February during the last 23 years:

Excessive monthly precipitation.

State.	No. years noted.	State.	No. years noted.
California	15	North Carolina	9
Oregon	12	Texas	8
Washington	11	Alabama	8
Tennessee	10	Indiana	6

Excessive monthly precipitation—Continued.

State.	No. years noted.	State.	No. years noted.
Mississippi	6	Utah	1
New York	5	Colorado	0
Georgia	5	The Dakotas	0
Florida	4	Delaware	0
Louisiana	4	District of Columbia	0
Arkansas	3	Idaho	0
Connecticut	3	Indian Territory	0
Kentucky	3	Iowa	0
Pennsylvania	3	Maine	0
Illinois	2	Maryland	0
Massachusetts	2	Minnesota	0
Ohio	2	Missouri	0
Rhode Island	2	Montana	0
South Carolina	2	Nebraska	0
Kansas	1	Nevada	0
Michigan	1	New Jersey	0
New Hampshire	1	Vermont	0
New Mexico	1	West Virginia	0
Virginia	1	Wisconsin	0
Arizona	1	Wyoming	0

Excessive daily precipitation (24 hours).

Texas	14	Massachusetts	3
Alabama	13	Arizona	2
Georgia	13	Iowa	2
Tennessee	13	The Dakotas	1
New York	11	Delaware	1
Arkansas	10	New Jersey	1
Louisiana	10	Rhode Island	1
North Carolina	10	South Carolina	1
Florida	9	Washington	1
Illinois	9	Colorado	0
Mississippi	8	District of Columbia	0
Oregon	7	Idaho	0
California	6	Indian Territory	0
Kentucky	6	Minnesota	0
Connecticut	5	Montana	0
Ohio	5	Nebraska	0
Indiana	4	Nevada	0
Michigan	4	New Hampshire	0
Pennsylvania	4	New Mexico	0
Kansas	3	Utah	0
Maryland	3	Vermont	0
Virginia	3	West Virginia	0
Maine	3	Wisconsin	0
Missouri	3	Wyoming	0

Excessive hourly precipitation.

State.	No. years noted.	State.	No. years noted.
Tennessee	8	Kentucky	0
Texas	4	Maine	0
Mississippi	4	Maryland	0
North Carolina	4	Massachusetts	0
California	3	Minnesota	0
Alabama	2	Missouri	0
Arkansas	2	Montana	0
Florida	2	Nebraska	0
Georgia	1	Nevada	0
Louisiana	1	New Hampshire	0
Michigan	1	New Jersey	0
Pennsylvania	1	New Mexico	0
Arizona	0	New York	0
Colorado	0	Ohio	0
Connecticut	0	Oregon	0
The Dakotas	0	Rhode Island	0
Delaware	0	South Carolina	0
District of Columbia	0	Utah	0
Idaho	0	Vermont	0
Illinois	0	Virginia	0
Indiana	0	Washington	0
Indian Territory	0	West Virginia	0
Iowa	0	Wisconsin	0
Kansas	0	Wyoming	0

The following tables give exceptionally heavy monthly, daily, and hourly precipitation reported for February during the last 23 years:

Monthly.

Station and state.	Am't.	Year.	Station and state.	Am't.	Year.
	Inches.			*Inches.*	
Boulder Creek, Cal	34.03	1891	Felton, Cal	21.69	1891
Cuyamaca, Cal	32.20	1891	Summit, Cal	20.70	1887
Laurel, Cal	28.95	1891	Crescent City, Cal	20.55	1891
Cisco, Cal	22.85	1887	Highlands, N. C	20.20	1891

Daily (24 hours).

Station and state.	Amount.	Date.	Station and state.	Amount.	Date.
	Inches.			*Inches.*	
Stonewall Mine, Cal....	23.90	21-24, 1891	Palermo, Cal.....	6.12	14-15, 1891
Cuyamaca, Cal	22.40	22-23, 1891	Vacaville, Cal a	6.10	14-15, 1891
Santa Rosa Ranch, Cal.	15.33	21-23, 1891	Highlands, N. C	6.01	8-9, 1891
Oneida, N. Y	10.10	13, 1874	Mt. Vernon B'ks, Ala..	5.82	13, 1891
Emilie, La	8.42	13-14, 1891	Corpus Christi, Tex	5.80	3, 1891
Maurepas, La	7.55	15, 1891	Monroe, La	5.73	12-13, 1891
Julian, Cal	7.48	23-24, 1891	Athens, Ga.....	5.26	7, 1891
Oakland, Cal a	6.65	15, 1891	Lynnville, Tenn	5.15	16-17, 1893
Farleys Camp, Aris....	6.45	17-18, 1891	Los Gatos, Cal.....	5.12	14-15, 1891
Campo, Cal	6.40	21-22, 1891	Kosciusko, Miss	5.00	12-13, 1891
Luling, La.....	6.24	13-14, 1891			

One hour and less.

Station and state.	Amount.	Time.	Date.
	Inches.	*h. m.*	
Jupiter, Fla.....	0.45	0 05	25, 1893
Memphis, Tenn	0.30	0 05	6, 1892
Do	0.25	0 05	8, 1891
Do	0.55	0 10	6, 1892
Little Rock, Ark	0.70	0 12	6, 1892
Louisville, Miss	1.93	0 30	26, 1890
Galveston, Tex	3.31	1 00	22, 1888

SNOW.

On the 1st trains in eastern Upper Michigan, parts of eastern Kansas, and at Havre, Mont., were delayed by drifting snow. On the 2d and 3d a heavy snowstorm prevailed over Washington and Oregon and the northern lake region. During the 3d and 4th heavy snow, with high winds, prevailed over the middle lake region. On the 5th heavy snow set in over Iowa and extended over Minnesota, Wisconsin, and western Lower Michigan by the 6th. Trains on the Duluth, Red Wing, and Southern Railroad were snowbound from the 2d to the 9th. Heavy snow fell in Massachusetts on the 13th, and the storm extended over New Hampshire and western Maine by the 14th. Heavy snow was reported in northwestern Texas on the 15th and 16th.

During the 17th and 18th gales and heavy snow prevailed from southern New England to eastern Pennsylvania. A severe storm of wind and snow continued in New York, Pennsylvania, parts of Maryland, and in northern Ohio and eastern Michigan on the 19th, and heavy snow fell the night of the 19–20th in eastern Massachusetts and New Hampshire. During the 20th the storm continued in New England and along the middle Atlantic coast. On the 21st and 22d heavy snow was reported in the mountains of New Mexico. A snowstorm, with high winds, prevailed over New England, New York, and Pennsylvania on the 22d. On the 27th heavy snow, with thunderstorms, occurred in northern Iowa, and the snow area extended over Minnesota. During the 28th the snowstorm continued over northern Iowa and Minnesota, and extended over Wisconsin and Upper Michigan.

MONTHLY SNOWFALL (in inches and tenths).

Chart V shows the depth of snowfall reported for the month.

The greatest depth of snowfall reported was 99, at Edmanton, Plumas County, Cal. A depth of 90 was noted at Climax, Colo.; 78 at Monroe, Mass., and Monroe, N. H.; 76 at East Clallam, Wash.; 72 at Utica, N. Y.; 67 at Jacksonville, Vt.; 66 at Cornish, Me.; 50 to 60 over southwestern Maine, southern New Hampshire, southern Vermont, and northwestern Massachusetts, and at Dyberry, Pa., Chama, N. Mex., and Stofiel, Nev.; 40 to 50 generally over the interior of New England and eastern New York, and at Dover, N. J., Wheeler, Ohio, Bayfield, Wis., and Fort Sherman, Idaho.

In an area extending generally over New England and eastern New York and thence over northern New Jersey and eastern Pennsylvania, and in northwestern Wisconsin, the mountains of Colorado and extreme north-central New Mexico, in adjoining parts of northern Idaho and eastern Washington, and in an area extending over west-central and northwestern Washington the monthly snowfall exceeded 30.

Areas of 20, or more, of snowfall covered New England, New York, Pennsylvania, western Maryland, northeastern West Virginia, interior parts of Lower and Upper Michigan, northern Wisconsin, southeastern Minnesota, central Colorado, north-central New Mexico, the northern Rocky Mountain region, northeastern California, central and southern Oregon, and the greater part of Washington.

DEPTH OF SNOW ON GROUND ON THE 15TH AND AT THE CLOSE OF THE MONTH.

Chart VI shows the depth of snow reported on the ground on the 15th. At points in the mountains of Colorado a depth of 70 was reported. In the northern Rocky Mountain region, in an area covering western Upper Michigan and north-central Wisconsin, and at stations in northeastern California, central Washington, northern Lower Michigan, and eastern Upper Michigan the depth was 30, or more. At stations in the interior of New England north of Connecticut, over interior and northern parts of Wisconsin and Minnesota, and in northeastern North Dakota 20, or more, were reported. The area of 10, or more, covered the greater part of the interior of New England and eastern New York, Upper and Lower Michigan, Wisconsin, Minnesota, northeastern Iowa, northeastern South Dakota, eastern and northern North Dakota, northeastern Montana, north-central and south-central Colorado, northeastern California, and the interior of Washington. A depth of 10, or more, was also noted from the northern Rocky Mountains over the central part of the middle plateau region.

Chart VII shows the depth of snow reported on the ground at the close of the month. A depth of 70 to 80 was reported at points in the mountains of Colorado; 40, or more, at stations in the interior of New England, and in an area covering north-central Wisconsin and western Upper Michigan; 30 to 40 generally in central and west-central New England, northwestern Wisconsin, southeastern Minnesota, the northern Rocky Mountain region, and at points in northeastern California; 20, or more, over the greater part of New England, central and eastern New York, Upper Michigan, the northern half of Lower Michigan, northern Wisconsin, Minnesota, in northeastern North Dakota, from the northern Rocky Mountain region to north-central Utah, and at points in central Washington. The area of 10, or more, reached southeastern Pennsylvania and western Maryland, southern Lower Michigan, southern Wisconsin, central Iowa, northeastern South Dakota, eastern and northern North Dakota, and covered the middle and northern Rocky Mountain regions, northern and central Utah, and northeastern Nevada.

Monthly snowfall of 10 inches, or more, was reported as follows, and in states and territories where the maximum depth was below that amount the station reporting the greatest is given:

Arizona.—Teviston and Wood Canyon, 14; Chiricahua Mountains, 13; Dragoon Summit, 12; Wilgus, 10. *Arkansas.*—Corning, 5.5. *California.*—Edmanton, 99; Cisco, 85; Boca, 79; Templeton, 75; Emigrant Gap, 54; Dunsmuir, 48; Susanville, 35; Sisson, 28; Fort Bidwell, 24.5; Shasta, 24; Truckee, 22; Sims, 20; Delta, 19.

Colorado.—Climax, 90; Breckenridge, 84.5; Cumbres, 70; Dillon, 48; Pikes Peak, 43.3; Rico, 42.5; Stamford, 42; Red Cliff, 40.6; Steamboat Springs, 39; Collbran, 37.9; Pagoda (near), 34; Ward District, 32; Moraine, 29; Gold Hill,

25.5; Greenhorn, 24; Lavender, 22; Lay, 21.5; Paonia and Smoky Hill Mine, 21; Alma, 20.5; Arboles and Como (near), 19.2; Grand Junction, 18.8: Georgetown, 18.1; Delta, 17; Fruita, 15.7; Scissors, 15; Dumont, 13.9; T. S. Ranch, 13.5; Meeker, 13; Le Roy, 12.2; La Jara, 12; Garnett, 11.5; Amherst, 11; Bennet, 10.1; Avoca, Robb, and Saint Cloud, 10.

Connecticut.—New Hartford (*a*), 47.5; Lebanon, 45; North Franklin and Waterbury, 43; Canton and West Simsbury, 40; Middletown and South Manchester, 38; Falls Village, 36.5; North Grosvenor Dale, 35; Stevenson, 33; New Haven, 32.9; New Hartford (*b*), 32.3; Southington, 31.5; Hartford (*b*) and Wallingford, 31; Voluntown, 30.5; Colchester and Storrs, 29; Norwalk (*b*), 25.9; New London, 19.7. *Delaware.*—Dover, 10. *District of Columbia.*—Washington, 8.7. *Georgia.*—Union Point, trace. *Idaho.*—Fort Sherman, 42.5; Garden Valley, 40; Henrys Lake, 32; Moscow, 31; Kootenai, 29; Idaho Falls, 20.6; Bonanza City, 20; American Falls, 19; Ruthburg, 16.

Illinois.—Watseka, 23; New Haven, 18; Monmouth, 17; Peoria (*b*), 16.5; Peoria (*a*), 16; Havana, 14.2; Ellsworth, 14; Rockford, 12.5; East Peoria, 12; Chicago, 11.8; Rushville, 11.5; Bloomington and Bushnell, 11; Dixon and Winnebago, 10. *Indiana.*—Angola, 22.5; Hawpatch, 17.5; Columbia City, 15.5; Marion, 13.5; Mount Vernon and Princeton, 13; Kokomo, 12; Logansport (*b*), 11.5; Evansville, Michigan City, and Point Isabel, 11; Indianapolis, 10.1; Seymour, 10. *Indian Territory.*—Fort Supply, 6.2. *Iowa.*—Denison, 24.6; Algona, 20.4; Carroll, 19.5; Storm Lake, 15.7; Hampton, 15.4; Audubon, 15.2; Logan and Osage, 15; Charles City, 14.5; Keokuk, 14.4; Eagle Grove and Sac City, 14; Alta (*a*) and College Springs, 13; Fort Madison, 12.5; Cedar Falls and Iowa Falls, 12.5; Blakeville and Clinton, 11.5; Jefferson, 11; Panama, 10.5.

Kansas.—Leavenworth, 15; Topeka, 14.6; Pauline, 13; Hutchinson, 12.4; Englewood, 11.8; Bucklin, 10. *Kentucky.*—Wickliffe, 8. *Maine.*—Cornish, 65.5; Portland, 50.9; Lewiston, 46; Kennebec Arsenal, 45; Farmington, 40.2; Kents Hill, 38?; Gardiner, 35.2; Bar Harbor, 33.5; Fairfield, 32.5; Belfast and Easton, 32; Houlton, 27.9; East Machias, 26.5; Calais, 25; Indian Stream, 22.7; Eastport, 20.5; Petit Menan, 18.5. *Maryland.*—Boettcherville, 29; Sunnyside, 22; Cumberland (*a*), 20; Glyndon, 19.8; Mount Saint Marys, 15.3; Darlington, 15; Westminster, 13.6; Oakland, 13; New Market, 12; Baltimore, 11.7; Barren Creek Springs, Denton, and Taneytown, 11; Fenby, 10.6; Frederick, 10.

Massachusetts.—Monroe, 78; North Billerica, 61.5; Groton (*a*), 56; Andover, 55.8; Wakefield, 50; Mount Nonotuck, 49.5; Amherst Experiment Station (*b*), Salem (*b*), and Westboro, 49; Springfield Armory, 48.5; Adams (*a*), 48; Gilbertville, 47; Monson, 46; Lawrence, 45.5; Amherst Experiment Station (*a*), Beverly Farms, and Concord (*a*), 45; Fitchburg (*b*), 44.5; Wayland, 44; Newburyport (*b*), 43; Leominster, 42.5; Kendall Green and Ludlow Center, 42; Fitchburg (*a*), 41.5; Williamstown, 38.8; Roxbury, 38.1; Mystic Lake and Wakefield, 38; Dudley, 37.8; Blue Hill (summit), Leeds, and Somerset, 37; Framingham, 36.5; Amherst, 36; Mansfield, 35.5; Boston, 35.3; Webster, 35; Chestnut Hill, 34.2; Leicester, Plymouth, Randolph, and Taunton (*b*), 34; Hingham, 32; Woods Holl, 31.5; Middleboro, 30.5; Fall River (*a*) and Milton, 28; New Bedford (*a*), 27; New Bedford (*b*), 26.5; Taunton (*a*), 25.1; Fiskdale, 25; Provincetown, 24.7; Wellesley, 24; Hyannis. 22.8; Royalston, 18; Long Plain, 15; Vineyard Haven, 13.9; Nantucket, 13.

Michigan.—Caldwell, 33; Harrisville, 32.2; Harbor Springs, 32; Jeddo, 30.5; Brown City, 29; Escanaba, 28.7; Berlin, 26.1; Sand Beach, 26; Fairview and Hayes, 25; Paris, 24.5; Bear Lake, Ivan, Olivet, and Stockbridge, 24; Grape, 23.2; Hastings, 22.8; Boon, 22.7; Fitchburg, Gaylord, and Harrison, 21.5; Bellaire, 21.2; Williamstown, 21; Ann Arbor, Arbela, and Washington, 20.5; Saint Ignace and Thornville, 20; Hart, 19.5; Vandalia, 19.3; Marquette, 19.1; Hanover and Howell, 19; Adrian, 18.7; Ovid, 18.5; Birch Run, Detroit, and Lake City, 18; Grayling, 17; Madison, 16.6; Calumet and Noble, 16.5; Mayville, 16; Albion, 15.9; Manistee, 15.6; East Tawas and Rawsonville, 15.5; Port Huron, 15.2; Ball Mountain, 14.9; Marshall, 14.4; Birmingham, 14.3; Allegan and Clinton, 14.2; McMillan, 14; Lansing, 13.8; Benton Harbor, 13.7; Alpena and Grand Haven, 13.4; Alma and Berrien Springs (*a*), 13.2; Evart, 12.5; Flint, 12.4; Kalamazoo, 12.2; Hillsdale, 12; Sault Ste. Marie, 11.6; Bronson, North Marshall, and Parkville, 11; Berrien Springs (*b*), 10.5; Charlevoix, 10.

Minnesota.—Wabasha, 30.5; Red Wing, 28.1; Blooming Grove, 25; Farmington, 22.6; Maple Plain, 22.2; Saint Paul, 20; Albert Lea, 19; Easton and Rolling Green, 18; Minneapolis and Rochester, 17.8; Alma City, 17; Duluth, 16; Redwood Falls, 15.5; Pokegama Falls, 15; Caledonia and Moorhead, 14.7; Cambridge, 14.5; Alexandria (*a*) and Grand Meadow, 14; Bird Island, 13.5; Lake Winnibigoshish, 13.1; Saint Charles, 12.7; Minnesota City, 12; Park Rapids and Winona, 11.5; Sheldon, 11.1; Fort Ripley and Ortonville, 11; Leech Lake, 10.1; Montevideo and Sandy Lake Dam, 10. *Mississippi.*—Water Valley, trace. *Missouri.*—Canton, 18; Steffenville, 17; Edina, 14.5; Sublette, 14; Pickering and Platte River, 11.5; New Boston, 11.2; Hannibal, 11; Palmyra, 10.8; Farmersville, 10.7; Kansas City, 10.4; Gallatin, 10.

Montana.—Fort Missoula, 19.8. *Nebraska.*—Tekamah, 22.5; Stanton and West Point, 16; Marquette and Minden, 15.8; Hartington, 15; Syracuse, 14.2; Genoa, Kennedy, and Lexington, 14; David City and Turlington, 13; Ravenna, 12.5; Table Rock, 12; Auburn (*b*), 11.5; Kearney, 11.2; Arborville, Mullen, and Norfolk, 11; Thedford and Weeping Water, 10.5; Madrid, 10. *Nevada.*—Stofiel, 52; Virginia City, 47.5; South Camp, 33.8; Tuscarora, 30.5; Lewers Ranch, 29.9; Verdi, 29; Palmetto, 24; Elko, 22; Tybo, 18; Wells, 17.2; Carson City, 16.6; Belmont, 15.5; Genoa, 15; Halleck, 14; Pioche, 12; Cranes Ranch, 11; Austin, 10.3; Reno, 10.

New Hampshire.—Monroe, 78; North Conway, 66; Grafton, 64; Antrim, 59.5; Concord (*a*), 59; Plymouth, 57.6; Walpole, 56,8; Sanbornton, 54.5; Hanover (*a*), 53.2; Keene and Nashua, 53; Berlin Mills, 47.2; Peterboro, 46.8; Newton, 44.5; Manchester, 44.2; Brookline, 43; Dublin, 42; East Canterbury, 34.5; Littleton, 33.5; Bethlehem, 31; Stratford, 30; West Milan, 26; Lancaster, 21.3. *New Jersey.*—Dover, 40.1; Belvidere and River Vale, 29; Elizabeth, 28.5; Butler, 27; South Orange, 26; Paterson, 25; Junction, 23.5; Gillette, 23; Newark (*a*), 21.5; Newark (*b*), 20.2; Bayonne, 17.5; Plainfield, 16.7; Boonton and Locktown, 16.5; Lambertville, 15; Beverly, 14.7; New Brunswick, 13.5; Somerville, 12.2; Trenton, 12; Franklinville, 11; Moorestown, 10.5. *New Mexico.*—Chama, 50; Monero, 26; Hillsboro, 15; Fort Stanton, 14.7; East Las Vegas, 10.2.

New York.—Utica, 72.2; Rondout, 54; Honeymead Brook, 51.6; Gloversville, 50.6; Turin, 49.8; Middletown, 47.5; Carmel, 47; West Point, 46.8; Eden Center, 46; Boyds Corners, 44.5; Le Roy, 42; Glens Falls, 41; Albany, 40.7; Port Jervis, 39.5; Lebanon Springs, 37.2; Palermo, 33.8; Alfred Center and New York, 32; Angelica and Cooperstown, 31.5; Poughkeepsie, 31; Brookfield, 30.5; Victor, 30.2; Rochester, 29.8; Binghamton and Lyons, 29.5; Lowville, 29; Baldwinsville, 28; Ampersand, 26.5; Geneva, 25.5; South Canisteo, 25; Factoryville, 24.8; Ithaca, 24.2; Brentwood, 24; Perry City, 23.9; Wedgwood, 23.6; Lockport and Potsdam, 23; Romulus, 21.8; Buffalo, 21.6; Humphrey and Setauket, 21; North Hammond, 19.9; Arcade, 19.1; Friendship, 18.1; Madison Barracks, 17.8; Canton, 16.3; Addison, 15.7; Plattsburg Barracks, 15.2; Elmira, 12.5; Oswego, 11.5. *North Carolina.*—Bakersville, 11. *North Dakota.*—Mayville, 17; Lakota, 16.1;

Wild Rice, 12.1; Saint Johns, 12; Grafton, 11.5; Milton, 11; Grand Forks, 10.6; Grand Rapids, 10.

Ohio.—Wheeler, 44; Bissells, 31.4; Chicago, 24.5; Warren, 23.6; Fostoria and Youngstown, 23; Sandusky, 22.1; Auburn, 20.8; Harbor, 20.4; Colebrook, 20; Akron, 19.8; Wauseon, 19.3; Garrettsville and Strongsville, 19; Upper Sandusky, 18.9; Lordstown, 18.5; Orangeville and Rittman, 18; New Berlin, 17.8; Annapolis and Ashland, 17.5; Findlay, Green Hill, North Royalton, and Ridgeville Corners, 17; Benton Ridge and Carrollton, 16; Montpelier, 15.6; Kenton and New Alexandria, 15.5; Sylvania, 15; Canton, 14.3; Wooster (*a*), 14.2; Mansfield and Tiffin, 14; Gratiot, 13.8; North Lewisburg and Van Wert, 13.5; Wooster (*b*), 13.4; Bangorville and Cleveland, 13.2; Oberlin, 13; Tyrone, 12.5; Ohio State University, 12.1; Bloomingburg and Piqua, 12; Millport, 11.8; Ridge, 11.5; Bement, Caledonia, Ellsworth, McLuney, and New Comerstown, 11; West Milton, 10.6; Big Prairie and New Holland, 10.5; Toledo and Weymouth, 10.4; Bethany, 10.2; Columbus and Pataskala, 10.

Oklahoma.—Gate City, 12.6. *Oregon.*—Siskiyou, 84; Glenora and Hood River (near), 42.5; Canyon City, 23.5; Crook and Joseph, 23.2; Lakeview, 23; Junction City, Leland, The Dalles, and Williams, 22; Portland, 20; Sparta, 18; Aurora and West Fork, 17.5; Lafayette, 17; Baker City, 16.8; La Grande, 16.5; Monmouth, 16; Comstock and Eugene, 15; Beulah and Springfield, 14.5; Ashland (*b*), 14; Albany (*a*) and Ashland (*a*), 12.5; Weston, 12; Happy Valley, 11.3; Fife and Hubbard, 11; Mount Angel, 10.8; Roseburg, 10.6; Arlington, Salem (*a*), and Newberg, 10.

Pennsylvania.—Dyberry, 57; Blooming Grove, 45; Honesdale, 44; Wilkesbarre, 42.5; Blue Knob, 41.5; Saegerstown, 39.7; Girardville, 38; Meadville, 37; Somerset, 35.5; Kane and Stoyestown, 33.5; Mahoning, State College, and South Eaton, 33; Bloomsburg, 32.3; Grampian and Lock Haven, 32; Davis Island Dam, 31.2; East Mauch Chunk, 30.7; Johnstown, 30.5; Harrisburg, 30.3; Drifton, 30; Oil City, 29; Emporium, 26.3; Le Roy, 25.5; Aqueduct, 24.8; Warren, 24.6; Lebanon, 24.2; Huntingdon and Kilmer, 23.5; Hollidaysburg, 23.2; Easton, 23; York, 22.2; Wellsboro, 22; Carlisle, 21.7; Clarion and Quakertown, 21; Pottstown, West Newton, and Wysox, 20; Coopersburg, 19.9; Confluence, 19.3; McConnellsburg and Parker, 19; Coatesville, 18.7; Pittsburg, 18.3; Lancaster, 17.2; Erie, 17.1; Gettysburg, 17; Freeport and Saltsburg, 16; Ridgway, 14.5?; Swarthmore, 13.5; Kennett Square, 12.8; West Chester, 12.5; Lock No. 4, 10.5.

Rhode Island.—Lonsdale, 42.5; Pawtucket and Providence (*a*), 36; Providence (*b*), 35; Providence (*c*), 33; Kingston (*a*) and Olneyville, 29; Bristol and Kingston (*b*), 26; Narragansett Pier, 21.5; Block Island, 11.2. *South Carolina.*—Greenville, 1. *South Dakota.*—Spearfish, 20.5; Millbank, 20; Webster, 18.8; Travare, 18; Oelrichs, 17.5; Aberdeen and Wessington Springs, 16; Castlewood and Gary, 14; Watertown, 13.5; Frankfort and Sioux Falls, 12.5; Howard and Kimball, 12; Forestburg, 11; Cross and Parkston, 10.8; Britton, 10.5; Wolsey, 10. *Tennessee.*—Clarksville, 8. *Texas.*—Amarillo, 17.3; Hartley, 15.5; Coldwater, 15.2; Ochiltree, 12.

Utah.—Heber, 27.5; Ogden (*a*), 27.2; Levan, 25; Logan, 24.5; Blue Creek, 21; Salt Lake City, 18.8; Snowville, 18; Promontory, 17; Scofield, 16; Corinne, 15; Grouse Creek, 14.5; Castle Gate, 14; Beaver, 13.8; Parowan, 12.7; Provo City and Terrace, 12; Loa, 11.2. *Vermont.*—Jacksonville, 67.3; Brattleboro, 57; Hartland and Strafford, 51; Woodstock, 50.8; Vernon, 45.5; Norwich and Saxtons River, 44.5; South Royalton, 40.8; Chelsea, 38.5; Wells, 37; Enosburg Falls, 33.5; Cornwall, 33; Northfield, 30.8; Hyde Park, 29.5; Burlington, 19. *Virginia.*—Staunton, 18; Stephens City, 17; Riverton, 16; Woodstock, 15.2; Wytheville, 13.5; Lexington, 10.8; Dale Enterprise, 10.2.

Washington.—East Clallam, 76; Madrone, 62.5; Neah Bay, 45; Aberdeen, 44; Port Angeles, 41.9; Spokane, 39.7; Elbe and Fort Spokane, 37; Pine Hill, 35.6; Fort Simcoe, 34.5; Seattle, 30.5; Tatoosh Island, 30.1; Colfax, 29; East Sound, 28.8; Watervale, 26; Fort Townsend, 25.5; Moxee Valley, 25; Olympia, 21.5; Ferry, 20; Vashon, 18; Rosalia, 17.8; Olga, 16; Chelan, 15.5; Silver Creek, 15.3; Chehalis, 14.8; Pullman, 13. *West Virginia.*—Martinsburg, 21.5; Pleasant Hill, 20?; Marlinton, 18.5; Tannery, 17; Davis, 14.5.

Wisconsin.—Bayfield, 42; Weston, 35.8; Barron, 34.8; Menomonie, 34.3; Hudson, 33; Florence, 30.2; Chippewa Falls, 28; Eau Claire, 27; Medford (*a*), 26.5; Pepin, 26; Osceola, 25; Grantsburg, 23.5; Oconto, 23.4; Amherst, 23; Crandon and Medford (*b*), 22.5; Shell Lake, 22?; Koepenick and Shawano, 21; Columbus, 19; Depere, 16.6; Meadow Valley, 16; Green Bay, 15.9; Manitowoc, 15.8; Lincoln, 15.7; White Hall, 14?; Appleton and Oshkosh, 13; Westfield, 12.5; Baraboo, 12.3; Lancaster and Neillsville, 12; Fond du Lac, 11; Beaver Dam, 10.8; Beloit and Viroqua, 10.3; Black River Falls and Centralia, 10. *Wyoming.*—Lander, 15.5; Camp Pilot Butte, 10.5.

SLEET.

Description of the more severe sleetstorms is given under "Local storms." Sleet was reported as follows: 1st, Arkansas, Connecticut, Illinois, Indiana, Kansas, Massachusetts, Michigan, Missouri, Nevada, New Jersey, New York, Ohio, Oregon, Pennsylvania, Texas, and Utah. 2d, Arkansas, Connecticut, Illinois, Indiana, Indian Territory, Iowa, Kansas, Massachusetts, Michigan, Missouri, New Jersey, New York, Ohio, Pennsylvania, Texas, and Wisconsin. 3d, Arkansas, Connecticut, Illinois, Indiana, Louisiana, Maine, Massachusetts, Michigan, New Hampshire, New York, Ohio, Vermont, and West Virginia. 4th, California, Indiana, Nevada, and Vermont.

5th, California, Colorado, Delaware, District of Columbia, Illinois, Kentucky, Maryland, Michigan, Missouri, New Jersey, New York, North Carolina, South Carolina, Utah, Virginia, and Wisconsin. 6th, Georgia, Illinois, Iowa, Kentucky, Maryland, Massachusetts, Michigan, Missouri, New Hampshire, New Jersey, New York, North Carolina, Oregon, Pennsylvania, South Carolina, Texas, Vermont, Virginia, Washington, and West Virginia. 7th, Illinois, Indiana, Kentucky, Louisiana, New York, Ohio, Pennsylvania, Tennessee, Texas, and West Virginia. 8th, Arkansas, California, Illinois, Iowa, Mississippi, Missouri, Nevada, Oregon, Texas, and Utah.

9th, Alabama, Arkansas, Delaware, Georgia, Illinois, Indiana, Iowa, Kentucky, Michigan, Missouri, Nebraska, Nevada, New Jersey, New Mexico, New York, North Carolina, Ohio, Oregon, South Carolina, Virginia, and Wisconsin. 10th, Arkansas, Kentucky, Michigan, New Mexico, Ohio, Tennessee, and Virginia. 11th, Delaware, Iowa, Maryland, Nebraska, New Jersey, North Carolina, Oregon, Virginia, and Washington. 12th, California, Louisiana, Maryland, Nebraska, Nevada, New Mexico, North Carolina, North Dakota, Virginia, and Washington. 13th, Connecticut, Iowa, Kansas, Maryland, Massachusetts, Minnesota, Missouri, Nebraska, New Jersey, New York, North Carolina, North Dakota, Ohio, Pennsylvania, Rhode Island, South Dakota, Texas, Virginia, West Virginia, and Wisconsin.

14th, Arkansas, Illinois, Indiana, Iowa, Michigan, Minnesota, Missouri, New Jersey, New York, Ohio, Oklahoma, South Dakota, Vermont, Washington, West Virginia, and Wisconsin. 15th, Arizona, Arkansas, Illinois, Kansas, New York, North Carolina, Ohio, Oklahoma, Texas, and Vermont. 16th, Illinois, Indiana, Kansas, Maryland, Missouri, North Dakota, Ohio, Oklahoma, and Texas. 17th, Delaware, District of Columbia, Illinois, Indiana, Kentucky, Maryland, Missouri, New Jersey, North Carolina, Ohio, Pennsylvania, Texas, Vir-

ginia, and West Virginia. 18th, New Jersey, New Mexico, Ohio, Oregon, Tennessee, and Washington. 19th, Maryland, New Jersey, and Utah. 20th, Kentucky, Missouri, New Jersey, North Dakota, and Ohio.

21st, Arkansas, District of Columbia, Georgia, Illinois, Kentucky, Maryland, Missouri, New Jersey, North Carolina, Ohio, Tennessee, and Virginia. 22d, Connecticut, Maine, Maryland, Massachusetts, Nebraska, New Jersey, New York, South Dakota, and Virginia. 23d, Indiana, Iowa, and Nebraska. 25th, Nevada. 26th, Colorado, Iowa, Massachusetts, and Wisconsin. 27th, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, Nevada, North Carolina, South Carolina, Virginia, and Wisconsin. 28th, Delaware, Iowa, Maryland, Michigan, New Jersey, New York, Pennsylvania, Vermont, and Wisconsin.

HAIL.

Description of the more severe hailstorms of the month is given under "Local storms."

Hail was reported as follows: 3d, Mississippi. 4th, California. 5th, California and Oregon. 6th, Oregon. 8th, California, Mississippi, and Oregon. 12th, California, Florida, Oregon, Texas, and Utah. 13th, Kansas and Oregon. 14th, Arkansas, Louisiana, and Texas. 16th, Arizona, Arkansas, and Indian Territory. 20th, Indian Territory, Oklahoma, and Texas. 21st, Louisiana, Mississippi, and North Carolina. 22d, Colorado. 25th, Florida and Washington. 26th, Arizona, Florida, Oregon, and Texas. 27th, Alabama, Florida, Georgia, Kansas, Missouri, Oregon, and South Carolina. 28th, Florida and Louisiana.

WINDS.

The prevailing winds in February, 1893, are shown on Chart II by arrows flying with the wind. In the middle Atlantic and New England states, the Ohio Valley, and Tennessee the winds were generally from the northwest; in the south Atlantic states, from the northeast; over the Florida Peninsula and along the north Pacific coast, from east to south; in the west Gulf states, from north to northeast; in the Lake region, on the northeast slope of the Rocky Mountains, over the southern plateau region, and along the middle Pacific coast, from southwest to northwest; in the upper Mississippi valley and the extreme northwest, from west to northwest; in the Missouri Valley, from northwest to north; on the southeast slope of the Rocky Mountains, from west to north; over the middle and northern plateau regions, from southeast to southwest; along the south Pacific coast, from northwest to northeast; and in the east Gulf states, and on the middle-eastern slope of the Rocky Mountains, variable.

HIGH WINDS (in miles per hour).

Wind velocities of 50 miles, or more, per hour were reported at regular stations of the Weather Bureau as follows: 1st, 80, se., at Fort Canby, Wash.; 50, e., at Tatoosh Island, Wash. 2d, 96, w., at Pikes Peak, Colo.; 78, e., at Tatoosh Island, Wash.; 60, sw., at Amarillo, Tex.; 57, se., at Fort Canby, Wash.; 55, sw., at Lander, Wyo.; 50, e., at Chicago, Ill. 3d, 84, sw., at Pikes Peak, Colo.; 68, se., at Fort Canby, Wash.; 63, e., at Tatoosh Island, Wash.; 51, nw., at Woods Holl, Mass.; 50, nw., at Cleveland, Ohio. 4th, 98, w., at Pikes Peak, Colo.; 72, sw., at Winnemucca, Nev.; 64, e., at Tatoosh Island, Wash.; 54, nw., at Woods Holl, Mass. 5th, 54, s., at Fort Canby, Wash.; 54, e., at Tatoosh Island, Wash.; 52, sw., at Winnemucca, Nev.; 50, sw., at Amarillo, Tex. 6th, 50, e., at Tatoosh Island, Wash. 7th, 60, se., at Fort Canby, Wash.; 54, e., at Tatoosh Island, Wash. 8th, 61, sw., at Keeler, Cal.; 54, e., at Tatoosh Island, Wash.; 52, sw., at Winnemucca, Nev.; 52, se., at Fort Canby, Wash.

9th, 82, sw., at Pikes Peak, Colo.; 60, nw., at Kearney, Nebr.; 50, w., at Fort Stanton, N. Mex. 10th, 60, sw., at Buffalo, N. Y.; 56, sw., at Kittyhawk, N. C. 13th, 65, ne., at Block Island, R. I.; 56, s., at Amarillo, Tex. 15th, 60, se., at Fort Canby, Wash. 16th, 57, se., at Fort Canby, Wash. 17th, 60, e., at Tatoosh Island, Wash.; 54, e., at Chicago, Ill.; 52, sw., at Lexington, Ky. 18th, 61, ne., at Block Island, R. I. 19th, 60, nw., at Cleveland, Ohio; 52, nw., at Columbus, Ohio. 20th, 69, nw., at Block Island, R. I.; 66, sw., at Woods Holl, Mass.; 54, nw., at Atlantic City, N. J.; 53, n., at Kittyhawk, N. C.; 50, n., at Northfield, Vt.; 50, ne., at Eastport, Me. 22d, 92, w., at Pikes Peak, Colo.; 62, nw., at Woods Holl, Mass.; 50, nw., at Block Island, R. I.; 50, se, at Nantucket, Mass. 23d, 60, nw., at Cleveland, Ohio; 60, w., at Lexington, Ky.; 56, nw., at Columbus, Ohio; 55, nw., at Woods Holl, Mass. 26th, 56, nw., at Keeler, Cal. 27th, 60, sw., at Abilene, Tex.; 56, nw., at El Paso, Tex. 28th, 60, sw., at Chicago, Ill.

LOCAL STORMS.

1st.—In eastern Upper Michigan drifted snow delayed trains. At Saint Louis, Mo., a thunderstorm, with sleet and snow, began 7 p. m. and ended 10.05 p. m. The temperature during the storm was 13°. High northerly winds and drifting snow interrupted traffic in parts of eastern Kansas. High wind and snow caused a suspension of railroad traffic at Havre, Mont., on the 1st and 2d. A severe "norther" swept over the Western and Southwestern States.

2–3d.—At Springfield, Ill., rain and snow damaged electric wires, and snow delayed trains on the 2d. An unusually severe storm of snow and sleet prevailed at Grand Haven, Mich. Railroads were operated with difficulty, and no trains arrived from the south on the 3d. A Milwaukee steamer went ashore while attempting to enter the harbor, and was not floated until the 5th. Heavy snow blocked railroad lines in northern Wisconsin and northeastern Minnesota. At Climax, Colo., a snowfall of 8 inches was reported on the 2d. Heavy snow was noted in Oregon and Washington.

3d.—A northwest gale, with sleet and snow, prevailed over eastern Lower Michigan. On the 4th trains about Port Huron, Mich., were delayed by snow and ice. An exceptionally severe wind and snow storm prevailed over eastern Upper Michigan; trains were delayed and business was suspended. At Corpus Christi, Tex., a thunder and rain storm began 3.30 a. m. The storm reached its height at 5 a. m., when the lightning was continuous, the thunder deafening, and the rain falling heavily.

5–6th.—Heavy snow fell in central and eastern Iowa. The 6th was intensely cold, and on the 7th no trains were moving at Dubuque, Iowa. During the 6th the storm extended over Minnesota, Wisconsin, and Lower Michigan, seriously interfering with railroad traffic.

8th.—At Keeler, Cal., the wind increased in the evening and attained a velocity of 61 miles per hour from the southwest; rain fell at intervals during the day, and became general in the evening; heavy snow fell in the mountains.

10th.—Southeast to southwest gales prevailed along the Atlantic coast, with heavy rain on the south New England coast. A schooner ran ashore 1 mile north of Point Judith at 3 a. m.; the crew was saved; the vessel and cargo were lost. A schooner went ashore near Kittyhawk, N. C., but was gotten off without damage.

12th.—At De Land, Fla., a heavy rain and hail storm occurred in the afternoon. At 3 p. m. the temperature was 82°. At 3.35 p. m. the wind increased from the south, with tor-

rents of rain. At 3.40 p. m. hail began and continued 5 to 10 minutes. The temperature fell to 65°. The hailstones were clear and irregular in shape, and contained air bubbles; some of the stones weighed about 2 ounces.

13th.—At Boston, Mass., high northeast winds prevailed, with snow during the day and sleet in the evening. The storm was very severe over southern New England. At Block Island, R. I., heavy rain fell, and the wind reached a velocity of 65 miles per hour from the northeast. At New London, Conn., snow changed to sleet about noon, and sleet to rain at 12.15 p. m. The storm extended over New Hampshire and Maine the night of the 13th. At Manchester, N. H., 12 inches of snow fell. The snowfall was heavy in western Maine. At Dodge City, Kans., a heavy rain and hail storm began 4.47 p. m. and continued 8 minutes. The hailstones increased in size as the storm progressed, the largest being about the size of a sparrow's egg. The storm advanced from the southwest and hail fell to a depth of about one inch. At North Platte, Nebr., rain fell in the afternoon. About 5 p. m. the wind changed from southeast to northwest and increased to 40 miles per hour, with heavy snow, and a fall in temperature of 15° in 15 minutes. The storm continued until nearly noon of the 14th.

14–15th.—Heavy rain caused a rapid rise in the rivers of Alabama and Mississippi.

16th.—At Memphis, Tenn., a severe thunderstorm, with high wind, occurred between 5.30 and 6 a. m. Heavy rain fell at 9 a. m., and thunderstorms occurred at intervals during the day. Snowfall to a depth of 14 inches was reported at Hartley, Tex.

17th.—A heavy northeast snowstorm prevailed at Philadelphia, Pa., in the afternoon. In the evening the snow became light and changed to sleet about 11 p. m. High south to southeast winds prevailed at Toledo, Ohio. Sleet changed to snow in the afternoon, and snow ended 10.25 p. m. Street and railroad traffic was interrupted. At Kansas City, Mo., sleet began 10.07 p. m., and changed to snow 10.45 p. m. of the 16th, and snow continued until the morning of the 17th. Six inches of snow fell, delaying traffic. Heavy snow fell at night in southwestern Kansas.

18th—At Boston, Mass., snow began the night of the 17th and continued until 8 a. m., 18th. Eleven inches of snow fell, interrupting traffic, and gales damaged shipping. The steamer "Baltic" went ashore on the eastern point of Nahant, Mass., at 5 a. m. The vessel, valued with the cargo at $45,000, was a total loss; the crew was saved. Northeast gales and heavy snow interrupted traffic and impeded navigation along the southern New England and New York coasts.

19th.—Heavy snow fell in New York, Pennsylvania, Maryland, and northern Ohio; severe local storms occurred in Maryland; and a strong gale, with snow flurries, prevailed over Lower Michigan. At Harrisburg, Pa., the wind reached an extreme velocity of 60 miles per hour, snow drifted heavily, and lightning flashes were observed in the southeast in the evening. A destructive windstorm, lasting 10 minutes, unroofed houses and uprooted trees at Willow Street, Pa. The temperature fell 34° in 4 hours. At Baltimore, Md., a northwest gale, with heavy snow, began 9.52 and ended 10.20 p. m. A brilliant flash of lightning, with heavy thunder, occurred at the beginning of the storm. The wind continued high until midnight.

A northwest gale, with sleet and flashes of lightning, struck Fallston, Md., at 9.48 p. m.; houses were unroofed and trees prostrated. At Fenby, Md., considerable damage was caused by wind, and lightning was observed. Damage by wind was also reported at Salisbury, Md. At Solomons, Md., a thunderstorm at 11 p. m. was followed by a violent northwest gale, which continued until 9 a. m., 20th; a number of vessels were blown ashore at that place. At Westminster, Md., a sudden and violent windstorm began 9 p. m., and continued 10 minutes. Damage was caused by high west winds in parts of Virginia and West Virginia. At Sandusky, Ohio, the wind reached an extreme velocity of 60 miles per hour, and the temperature fell 13° in one hour.

19–20th.—In eastern Massachusetts and southern New Hampshire heavy snow began the evening of the 19th and continued during the morning of the 20th, with a northwest gale. The temperature was very low and the snow drifted heavily. A severe windstorm, with thunder, rain, and snow, began at Asbury Park, N. J., at 11 p. m. of the 19th, and the wind continued high during the 20th. Considerable damage was caused by wind in New Jersey. Destructive gales prevailed on the Carolina coast. At Philadelphia, Pa., snow ended the night of the 19th, but the wind continued high from the northwest during the 20th. Two vessels, with cargoes, were lost near Hatteras, N. C.; the crews were saved.

20th.—An unusually severe snowstorm, with high wind, prevailed in Maine. Traffic was interrupted, and damage to shipping was reported. At Plymouth, N. H., heavy snow continued until the 22d. Dangerous gales prevailed along the New England coast. A schooner went ashore near the entrance to Vineyard Haven harbor, Mass. A coal barge valued at $25,000 was lost near Block Island, R. I., and the captain and crew of three men were drowned. A schooner went ashore near Niantic, R. I. The storm was reported the severest of the season throughout Connecticut; railroads suspended operations, and country roads were impassable. In Brooklyn, N. Y., 15 unfinished houses were blown down. High northwest winds prevailed along the middle Atlantic coast. At Mountain Spring, Tex., heavy rain, with small hail, fell from 4 to 5 p. m.; 1.30 inch of rain fell in 15 minutes.

21st.—A southwest gale, reaching a velocity of 40 miles per hour at 1.30 p. m., prevailed at Pensacola, Fla. A destructive local storm was reported about 50 miles east of Mobile, Ala., in the early morning. Severe local storms were reported about 30 miles west of Mobile between noon and 1 p. m.; large trees were prostrated. A violent wind, rain, and hail storm was reported at Bastrop, La., about 1 a. m. A destructive storm was reported at Jacksonville, Tex., in the early morning.

22d.—Heavy snow fell in New England, New York, and Pennsylvania. In parts of Maine snow drifted to a depth of 9 to 11 feet, blockading railroads. Along the coast high wind and snow delayed vessels, and a number of wrecks were reported. Heavy drifting snow delayed trains in New York and Pennsylvania. A schooner went ashore near Kittyhawk, N. C.

25th.—At Jupiter, Fla., a heavy rain and thunderstorm began 12.16 p. m. and ended 6.45 p. m.; 2.65 inches of rain fell. At 12.50 p. m., during heavy rain, hail began and fell 30 minutes; the hailstones were one-half inch in diameter.

26th.—A heavy thunderstorm from the southwest visited New Orleans, La., from 2.30 to 3.30 p. m.

27th.—During a northeast rain and wind storm, in the early morning, a bark went ashore on Cape Fear, N. C. A south squall, lasting 5 minutes, caused slight damage at De Land, Fla. A heavy snowstorm, beginning with thunder and lightning, visited western Iowa. Heavy, drifting snow was reported in Minnesota.

28th.—The snowstorm overspread Wisconsin and Upper Michigan, and continued in Minnesota and northern Iowa, attended by high winds. A destructive storm was reported at Marksville, La., at 1 p. m. The storm advanced from the southwest in a path one-fourth to one-half mile in width, attended by thunder, lightning, and hail. Two persons were reported killed, and a number of buildings were demolished. A thunderstorm from the west visited Alexandria, La. At Chicago, Ill., the wind reached a velocity of 60 miles per hour from the west. Several buildings were blown down and 6 persons were reported killed.

INLAND NAVIGATION.

STAGE OF WATER IN RIVERS.

The following table shows the danger-points at the various river stations; the highest and lowest stages for the month, with the dates of occurrence; and the monthly ranges:

Heights of rivers above low-water mark, February, 1893.

Stations.	Danger-point on gauge.	Highest water.		Lowest water.		Monthly range.
		Height.	Date.	Height.	Date.	
Red River.	*Feet.*	*Feet.*		*Feet.*		*Feet.*
Shreveport, La	29.9	16.0	1	9.9	17	6.1
Arkansas River.						
Fort Smith, Ark	22.0	10.0	24	2.6	7	7.4
Little Rock, Ark	23.0	13.7	26	6.4	10, 14	7.3
Missouri River.						
Fort Buford, N. Dak *						
Pierre, S. Dak *	14.0					
Sioux City, Iowa *	18.7					
Kansas City, Mo *	21.0					
Mississippi River.						
Saint Paul, Minn *	14.0					
La Crosse, Wis *	11.8					
Dubuque, Iowa *	16.0					
Davenport, Iowa *	15.0					
Keokuk, Iowa *	14.0					
Hannibal, Mo	17.0	4.8	18, 19	2.8	2	2.0
Saint Louis, Mo *	30.0					
Cairo, Ill	40.0	44.9	28	6.7	1	38.2
Memphis, Tenn	33.0	32.3	28	3.2	1	29.1
Vicksburg, Miss	41.0	38.0	28	6.2	1–4	31.8
New Orleans, La	13.0	12.6	28	3.7	15	8.9
Ohio River.						
Parkersburg, W. Va	38.0	38.0	11	10.5	27	27.5
Cincinnati, Ohio	45.0	54.9	20	22.2	28	32.7
Louisville, Ky	24.0	28.8	22	9.0	28	19.8
Cumberland River.						
Nashville, Tenn	40.0	40.8	22	7.0	10	33.8
Tennessee River.						
Chattanooga, Tenn	33.0	33.4	20	6.1	9	27.3
Knoxville, Tenn	29.0	18.0	18	3.6	27	14.4
Monongahela River.						
Pittsburg, Pa	29.0	23.1	8	5.3	27, 28	17.8
Savannah River.						
Augusta, Ga	32.0	25.0	14	7.6	24	17.4
Willamette River.						
Portland, Oregon	15.0	8.8	14, 15	1.2	1	7.6
Susquehanna River.						
Harrisburg, Pa	17.0	11.6	12	2.7	1	8.9
Alabama River.						
Montgomery, Ala	48.0	42.6	19	4.6	10, 11	38.0
James River.						
Lynchburg, Va		7.0	18	1.3	8–10	5.7
Sacramento River.						
Red Bluff, Cal		12.5	4	4.0	2	8.5
Sacramento, Cal		25.0	12	21.5	28	3.5

* River frozen.

FLOODS.

On the 7th and 8th the rivers rose rapidly at Pittsburg, Pa. The rise was from the Allegheny River, and was principally backwater in the Monongahela River. The Monongahela River gauge read 16.4 feet at 8 a. m. of the 7th, 19.8 feet at 1.30 p. m., and 23.8 feet at midnight of the 7th. The Allegheny River continued to rise during the 8th, reaching 25 feet at 6 a. m., and the Monongahela River rose until 3 a. m. of the 8th, when a stage of 24 feet was reached. Rivers and streams were high throughout eastern Ohio, Pennsylvania, and New York. On the 8th the Ohio River was rising rapidly at Parkersburg, W. Va., reaching 28.5 feet, and on the 9th cellars in low-lying parts of the city were flooded.

On the 9th streams in Ohio and Indiana were flooding their banks, and high water was reported in the San Joaquin River, California, and tributaries. The Kern River overflowed its banks at Bakersfield, Cal., about midnight, damaging railroad and other property. Large tracts of land in the San Joaquin and Santa Clara valleys were reported flooded. On the 10th the river continued to rise at Parkersburg, W. Va.; low lands and many roads in that section were submerged; and Riverside, a suburb, was surrounded by water.

On the 11th the Ohio River reached the danger-line, 38 feet, at Parkersburg, W. Va. During the 12th and 13th the river was falling at Parkersburg. At Cincinnati, Ohio, the Ohio River passed the danger-line, 45 feet, on the 11th, reached a stage of 53 feet on the 16th, then fell until the 18th, rose to 54.9 on the 20th, and subsided from the 21st to the close of the month, passing below the danger-line on the 23d. Low-lying sections of Cincinnati and suburbs were inundated.

At Louisville, Ky., the river reached the danger-line, 24 feet, on the 14th, reached a stage of 28.8 feet on the 22d, and passed below the danger-line on the 24th. At Evansville, Ind., the river reached the danger-line, 30 feet, on the 12th, rose to 41.8 feet on the 24th, and at the close of the month stood at 35.7 feet on the gauge. At Cairo, Ill., the danger-line, 40 feet, was passed on the 20th, and at the close of the month a stage of 44.9 feet was reported at that place.

High water was reported in rivers and streams of Georgia and Alabama after the 16th. At Gadsden, Ala., the Coosa River was 19.4 feet, 1.4 foot above the danger-line, on the 16th, reached a stage of 21.5 feet on the 17th and 18th, and on the 24th stood at 14.5 feet on the gauge. At Demopolis, Ala., the Tombigbee River was 36 feet, 1 foot above the danger-line, on the 16th, reached 50.4 feet on the 25th, and at the close of the month a stage of 49.3 feet was reported. The Tennessee River rose 0.4 foot above the danger-line at Chattanooga, Tenn., on the 20th. The Cumberland River rose above the danger-line, 40 feet, at Nashville, Tenn., on the 21st, reached 40.8 feet on the 22d, and passed below the danger-line on the 23d.

ICE IN RIVERS AND HARBORS AND CLOSING OF NAVIGATION.

On the 5th the harbor at Provincetown, Mass., was reported frozen for the first time this winter. On the 4th a steamer forced a passage through the ice from New London, Conn., to Norwich; this was the first trip between those points since January 16th. An ice gorge formed in the Connecticut River near Allans Point on the 13th, and large quantities of running ice passed New London. Ice passed out of the Delaware River at Port Jervis, N. Y., on the 11th. On the 11th ice in the Hudson River opposite Troy N. Y., broke up and moved to Van Rensselaer Islands, where a gorge formed. On the 10th ice in the Raritan River at New Brunswick, N. J., broke and began to move at 3 p. m. in cakes 8 to 12 inches in thickness, without causing material damage.

On the 10th an ice jam in the Delaware River at Lambertville, N. J., broke. At Lock Haven, Pa., the Susquehanna River was frozen on the 1st; on the 7th ice moved out of the river at that point; 16–18th, slush ice in river; 21st, river frozen. Ice gorged in the Clarion River at Clarion, Pa., on the 4th; 7th, ice gorge broke; 27th, ice gorged. The Susquehanna River opened at Harrisburg, Pa., on the 10th. Ice moved out of the Susquehanna at Wilkesbarre, Pa., on the 11th, but lodged between that point and Plymouth. Ice passed out of the Susquehanna at Selins Grove, Pa., on the 11th. Ice in the upper part of Chesapeake Bay was reported moving on the 2d.

Annapolis harbor was reported practically clear of ice on the 3d. On the 10th ice in the Susquehanna commenced to break up at Port Deposit, Md., and a gorge formed. On the 14th the ice gorge began to move, and water flooded a part of Port Deposit. An ice gorge was also reported near Havre de Grace, Md. Floating ice was reported in the Roanoke River at Weldon, N. C., on the 1st and 2d. The Cumberland River opened at Riddleton, Tenn., on the 1st. Ice in the Maumee River broke and gorged about 2 miles above Toledo, Ohio, on the 10th. Navigation was resumed on the Monongahela River at Greensboro, Pa., on the 2d. Floating ice was reported in the Allegheny River at Freeport, Pa., on the 1st and 18th to 28th. Ice broke up in the Allegheny at Oil City, Pa., on the 7th.

Ohio River.—At Parkersburg, W. Va., ice was running from the 1st to the 5th, and navigation was resumed on the 4th;

5th, river clear of ice at night; 21st to 27th, running ice. At Wheeling, W. Va., heavy floating ice was reported on the 9th, 17th, and 18th. At Portsmouth, Ohio, heavy running ice was reported on the 1st and 2d; 3d, navigation resumed; 3d to 6th, light running ice; 11th, heavy running ice and drift; navigation opened at Cincinnati, Ohio, on the 4th; 20th, canal frozen at Cincinnati. Heavy floating ice was noted at Marietta, Ohio, on the 1st to 6th, and 22d to 27th. At Louisville, Ky., ice was running on the 1st and 2d; 3d, ice moving out rapidly, and navigation partly resumed; 4th, river clear of ice and navigation fully resumed. Floating ice was noted at Paducah, Ky., from the 3d to the 13th. Heavy running ice was reported at Evansville, Ind., on the 4th. On the 5th an ice gorge broke at Carrsville, Ky.; at Golconda, Ill., the river was full of floating ice and rising rapidly, and about 50 loose coal barges passed that point.

Mississippi River.—An ice gorge broke at Alton, Ill., on the 23d. At Saint Louis, Mo., the ice gorge moved out the early morning of the 16th. Two steamboats, valued at $70,000, were sunk near Jefferson Barracks, and other vessels were damaged; on the 19th heavy floating ice and driftwood were noted at that point.

Floating ice was reported in the Wabash River at Vincennes, Ind., on the 4th to 9th and 12th. Floating ice was noted in the Wabash at Lafayette, Ind., on the 7th. Ice in the Wabash broke at Mount Carmel, Ill., on the 2d; 16th, river full of running ice. Ice in the Illinois River passed out at Havana, Ill., on the 26th. Ice was running in the Illinois River at Ottawa, Ill., on the 15th. At Beardstown, Ill., ice was running in the Illinois on the 23d.

Missouri River.—At Kansas City, Mo., ice partly broke on the 17th; 22d, ice gorge below the gauge caused a rise in water of 5.7 feet; 23d, ice gorge broke and river fell 6.7 feet. An ice gorge at Hermann, Mo., broke on the 16th. At Lexington, Mo., ice broke on the 23d; the river had been frozen since December 26, 1892. Ice broke at Miami, Mo., on the 24th; river clear of ice on the 28th. Ice broke at New Haven, Mo., on the 16th.

Ice in the Grand River broke at Brunswick, Mo., on the 24th. A report from Detroit, Mich., dated the 9th, stated that ice had piled up in the river at that point, and that ferryboats experienced difficulty in making their trips; on the 27th the ice moved down a short distance, but the lower ferry crossings remained frozen. On the 1st ice in the Saint Clair River moved down, leaving the river from Port Huron to the lake clear of ice; 2d, ferries resumed trips between Port Huron and Sarnia; 3d, ferry service discontinued. The harbor at Grand Haven, Mich., was blocked by ice during the greater part of the month, causing an almost entire suspension of navigation. A report from The Dalles, Oregon, stated that on the 1st the Columbia River was blocked by ice above the city, farther than ever before known; 5th to 22d, slush and ice 10 to 35 feet in thickness on the river; 23d, ice passed out; 28th, running ice.

ATMOSPHERIC ELECTRICITY.

AURORAS.

Auroral displays of February, 1893.

Date.	Station.	Extent of display.		Remarks.
		Azimuth.	Altitude.	
		°	°	
4	Eastport, Me	.....	25	Arch of white light.
4	Manchester, N. H	110 to 215	30	Arch of diffused yellow light, with small streamers.
4	Grafton, N. H	.....	.....	Arch, with streamers.
4	Northfield, Vt	135 to 225	45	Pale green.
4	New London, Conn	135 to 225	35	Grayish white light.
4	Penns Grove, N. J	135 to 225	.....	Steady glow, resembling early dawn.
4	Alta, Iowa	135 to 225	20	Arch, with very bright beams of green.
4	Duluth, Minn	Covered 100	38	Arch of diffused light, with occasional streamers to zenith.
4	Pierre, S. Dak	130 to 230	40	Faint display, with diffused white streamers.
4	Gaynor, Colo	90 to 270	.....	Red and white light and two streamers.
5	Northfield, Vt	135 to 225	40	White light.
5	Manchester, N. H	100 to 205	30	Faint, diffused yellow light.
5	Block Island, R. I	.....	40	Pale luminous beams, with a quick lateral movement.
5	New London, Conn	140 to 230	45	Beams of white light changing to rose color, and waves of white light moving from west to east.
5	Nashville, Tenn	In the N.	.....	Diffused light.
5	Bismarck, N. Dak	170 to 240	20	Pale, diffused light.
15	Manchester, N. H	120 to 215	35	Arch of straw color, with a lateral motion; at times in the form of a curtain.
15	North Billerica, Mass	.....	.....	Low arch in north, with broad beams of white light.
15	Wayland, Mass	.....	40	Arch of white light, with streamers.
15	New Haven, Conn	In the N.	20	Arch of electric light color.
15	New London, Conn	135 to 225	45	Pale yellow light changing to pale green; streamers in continual motion.
15-16	Oswego, N. Y	.....	20	Dim arch of white light, with occasional slender beams.
15	Grand Haven, Mich	90 to 270	30	Arch of white light, with streamers.
15	Marquette, Mich	135 to 225	25	Appeared in early morning as a pale, irregular arch, with streamers of various hues.
15	Medford, Wis	.....	.....	Beams of light flashing to zenith at intervals.
15	Mineral Point, Wis	.....	30	Very bright streamers moving west.
15	Duluth, Minn	Covered 100	70	Beams of pale diffused light.
15-16	Alta, Iowa	.....	.....	Bright streamers, with garnet, yellow, and purple beams.

Auroral displays of February, 1893—Continued.

Date.	Station.	Extent of display.		Remarks.
		Azimuth.	Altitude.	
		°	°	
15	Huron, S. Dak	135 to 220	60	Beams to altitude 60°.
15	Pierre, S. Dak	100 to 260	30	Luminous arch obscured by patches of clouds; streamers.
15-16	Yankton, S. Dak	.....	.....	Well-defined arch with streamers.
16	Northfield, Vt	135 to 180	45	Pale green light.
16	New London, Conn	130 to 230	50	Arch of white light, resembling dawn.

No important auroral displays were noted after the 16th.

THUNDERSTORMS.

Description of the more severe thunderstorms reported for the month is given under "Local storms."

Thunderstorms were reported as follows: East of the Rocky Mountains they were reported in the greatest number of states, 16, on the 27th; in 14 on the 14th and 16th; in 12 on the 15th; in 9 on the 13th, 20th, and 21st; in 8 on the 12th, 25th, and 26th; in 7 on the 17th; in 5 on the 19th and 28th; in 4 on the 1st; in 3 on the 10th and 22d; in 2 on the 2d, 18th, and 24th; and in 1 on the 3d to 9th, 11th, and 23d. There were no dates on which thunderstorms were not reported.

East of the Rocky Mountains thunderstorms were reported on the greatest number of dates, 13, in Alabama; on 11 in Florida; on 10 in Georgia, Missouri, and Texas; on 9 in Louisiana and Mississippi; on 8 in Ohio; on 7 in Arkansas and Tennessee; on 6 in Indiana and Kansas; on 5 in Illinois, Massachusetts, and North Carolina; on 4 in South Carolina and West Virginia; on 3 in Indian Territory, Iowa, Kentucky, and Oklahoma; and on 1 in Connecticut, Maryland, Minnesota, Nebraska, New Jersey, Pennsylvania, Rhode Island, and Virginia.

West of the Rocky Mountains thunderstorms were reported in Arizona on the 1st and 26th; in California on the 8th; in Colorado on the 13th; in New Mexico on the 16th; in Oregon on the 1st and 8th; and in Utah on the 12th. In states and territories other than those named no thunderstorms were reported.

STATE WEATHER SERVICES.

[*Temperature in degrees Fahrenheit; precipitation, including melted snow, in inches and hundredths.*]

The following extracts and summaries are republished from reports for February, 1893, of the directors of the various state weather services:

ALABAMA.

Temperature.—The mean was 3.6 above the normal; maximum, 82, at Geneva, 15th and 16th; minimum, 14, at Florence, 8th; greatest monthly range, 59, at Newburg; least monthly range, 36, at Mobile.

Precipitation.—The average was 1.67 above the normal; greatest monthly, 11.78, at Maysville; least monthly, 0.40, at Bermuda.

Wind.—Prevailing direction, south.—*P. H. Mell, Observer, Weather Bureau, Auburn, director.*

ARIZONA.

Temperature.—The mean was 0.6 above the normal; maximum, 87, at Fort Mohave and Yuma, 19th; minimum, 6, at Flagstaff, 27th; greatest monthly range, 60, at Fort Mohave; least monthly range, 42, at Oracle.

Precipitation.—The average was 0.40 below the normal; greatest monthly, 1.90, at Wood Canon; least monthly, 0.00, at several stations.

Wind.—Prevailing direction, southwest.—*W. Burrows, Observer, Weather Bureau, Tucson, director.*

ARKANSAS.

Temperature.—The mean was 4.4 below the normal; maximum, 74, at Hot Springs, 1st and 20th; minimum, 2, at Harrison, 11th; greatest monthly range, 64, at Harrison; least monthly range, 42, at Conway, Hope, and New Gascony.

Precipitation.—The average was 0.29 below the normal; greatest monthly, 6.85, at Osceola; least monthly, 1.90, at Fulton.

Wind.—Prevailing direction, north.—*M. F. Locke, Commissioner of Agriculture, Little Rock, director; F. H. Clarke, Local Forecast Official, Weather Bureau, assistant.*

CALIFORNIA.

Temperature.—The mean was 6.8 below the normal; maximum, 89, at Winchester, 21st; minimum, 3, at Susanville, 1st; greatest monthly range, 60, at San Jacinto; least monthly range, 20, at Yuba City.

Precipitation.—The average was 0.07 above the normal; greatest monthly, 13.07, at Meadow Valley; least monthly, 0.00, at Needles.

Wind.—Prevailing direction, west.—*J. A. Barwick, Observer, Weather Bureau, Sacramento, director.*

COLORADO.

Temperature.—Maximum, 78, at Minneapolis, 22d; minimum, —29, at Steamboat Spring, 15th; greatest monthly range, 87, at Orchard; least monthly range, 43, at Cumbres.

Precipitation.—The average was above the normal, except in the eastern counties where it was 0.15 below; greatest monthly, 9.00, at Climax; least monthly, 0.00, at Sanborn.

Winds.—Prevailing directions, west and northwest.—*J. J. Gilligan, Observer, Weather Bureau, Denver, director.*

FLORIDA.

Temperature.—The mean was about 2.0 above the normal; maximum, 88, at Plant City, 27th; minimum, 34, at Fort Meade, 23d; greatest monthly range, 51, at Fort Meade and Plant City; least monthly range, 23, at Key West and Mullet Key.

Precipitation.—The average was about 1.00 above the normal; greatest monthly, 9.53, at Federal Point; least monthly, 0.74, at Fort Myers.

Wind.—Prevailing direction, south.—*E. R. Demain, Observer, Weather Bureau, Jacksonville, director.*

GEORGIA.

Temperature.—Maximum, 87, at Savannah, 17th; minimum, 22, at Diamond, 23d and 24th; greatest monthly range, 56, at Americus; least monthly range, 34, at Morgan.

Precipitation.—Greatest monthly, 8.76, at Dahlonega; least monthly, 2.32, at Quitman.

Wind.—Prevailing direction, northeast.—*Park Morrill, Local Forecast Official, Weather Bureau, Atlanta, director.*

IDAHO.

Temperature.—Maximum, 60, at Ruthburg, 13th; minimum, —27, at Henrys Lake, 28th; greatest monthly range, 69, at Henrys Lake; least monthly range, 43, at Boise Barracks.

Precipitation.—Greatest monthly, 4.00, at Garden Valley; least monthly, 0.95, at Boise Barracks.—*J. H. Smith, Observer, Weather Bureau, Idaho Falls, director.*

ILLINOIS.

Temperature.—The mean was 4.9 below the normal; maximum, 64, at Cairo, 19th; minimum, —19, at Winnebago, 4th.

Precipitation.—The average was 0.14 below the normal; greatest monthly, 6.70, at Watseka; least monthly, 0.38, at Kankakee.

Wind.—Prevailing direction, northwest.—*John Craig, Observer, Weather Bureau, Springfield, director.*

INDIANA.

Temperature.—The mean was 1.9 below the normal; maximum, 61, at Marengo, 19th; minimum, —8, at Columbia City, 4th, and at Angola, 7th; greatest monthly range, 62, at Marion; least monthly range, 43, at Columbus.

Precipitation.—The average was 1.25 above the normal; greatest monthly, 8.31, at Marengo; least monthly, 1.93, at Muncie.

Wind.—Prevailing direction, west.—*Prof. H. A. Huston, Lafayette, director; C. F. R. Wappenhans, Local Forecast Official, Weather Bureau, assistant.*

IOWA WEATHER AND CROP SERVICE.

Temperature.—The mean was about 7.0 below the normal; maximum, 60, at Glenwood, 19th; minimum, - -28, at Charles City, 4th; greatest monthly range, 78, at Glenwood; least monthly range, 56, at Keosauqua.

Precipitation.—Greatest monthly, 2.91, at Hampton; least monthly, 0.06, at Glenwood.—*J. R. Sage, Des Moines, director; G. M. Chappel, Local Forecast Official, Weather Bureau, assistant.*

KANSAS.

Temperature.—The mean was 2.4 below the normal; maximum, 80, at Shields, 19th; minimum, —18, at Monument, 1st; greatest monthly range, 88, at Colby and Shields; least monthly range, 60, at Fort Riley.

Precipitation.—The average was 0.39 below the normal; greatest monthly, 1.69, at Leavenworth; least monthly, 0.00, at Burr Oak and Kirwin.

Wind.—Prevailing direction, north.—*T. B. Jennings, Observer, Weather Bureau, Topeka, director.*

KENTUCKY.

Temperature.—The mean was 1.3 below the normal; maximum, 70, at Harrodsburg and Louisa, 2d; minimum, 3, at Louisville, 8th; greatest monthly range, 64, at Harrodsburg; least monthly range, 37, at Catlettsburg.

Precipitation.—The average was 0.06 below the normal; greatest monthly, 7.74, at Middlesboro; least monthly, 2.60, at Springfield.

Wind.—Prevailing direction, west.—*Frank Burke, Local Forecast Official, Weather Bureau, Louisville, director.*

LOUISIANA.

Temperature.—The mean was 0.6 below the normal; maximum, 83, at Wallace, 15th; minimum, 21, at Winnsboro, 13th; greatest monthly range, 59, at Winnsboro; least monthly range, 26, at Port Eads.

Precipitation.—The average was 1.62 below the normal; greatest monthly, 6.11, at Girard; least monthly, 1.16, at Maurepas.

Wind.—Prevailing directions, north and south.—*R. E. Kerkam, Local Forecast Official, Weather Bureau, New Orleans, director.*

MARYLAND.

Temperature.—Maximum, 70, at Denton, 15th; minimum, —5, at Boettcherville, 21st; greatest monthly range, 63, at Boettcherville; least monthly range, 43, at Salisbury.

Precipitation.—Greatest monthly, 5.45, at Woodstock; least monthly, 2.22, at Jewell.

Wind.—Prevailing direction, northwest.—*Dr. William B. Clark, Johns Hopkins University, Baltimore, director; Prof. Milton Whitney, Maryland Agricultural College, secretary and treasurer; C. P. Cronk, Observer, Weather Bureau, in charge.*

MINNESOTA.

Temperature.—Maximum, 42, at Minnesota City and Winona, 13th; minimum, —45, at Crookston, 1st; greatest monthly range, 81, at Crookston; least monthly range, 60, at Hinckley.

Precipitation.—Greatest monthly, 3.08, at Wabasha; least monthly, 0.10, at Saint Vincent.

Wind.—Prevailing direction, northwest.—*E. A. Beals, Observer, Weather Bureau, Minneapolis, director.*

MISSISSIPPI.

Temperature.—The mean was 2.7 above the normal; maximum, 80, at Fayette, 4th, at Vaiden, 1st, and at Waynesboro, 16th; minimum, 16, at

University, 8th; greatest monthly range, 59, at University; least monthly range, 38, at Moss Point.

Precipitation.—The average was 0.71 below the normal; greatest monthly, 8.43, at Meridian; least monthly, 0.37, at Kosciusko.

Wind.—Prevailing direction, north.—*R. J. Hyatt, Local Forecast Official, Weather Bureau, Vicksburg, director.*

NEBRASKA.

Temperature.—Maximum, 68, at Indianola, 20th; minimum, —28, at Bassett, 6th, and at Ansley, 7th; greatest monthly range, 89, at Thedford; least monthly range, 50, at David City.

Precipitation.—Greatest monthly, 2.25, at Tekamah; least monthly, 0.00, at Superior.

Wind.—Prevailing direction, northwest.—*Prof. Goodwin D. Swezey, Crete, director; G. A. Loveland, Observer, Weather Bureau, assistant.*

NEVADA.

Temperature.—The mean was 3.6 below the normal; maximum, 69, at Downeyville, 18th; minimum, —40, at Stofiel, 1st; greatest monthly range, 94, at Stofiel and McDermitt; least monthly range, 36, at Wabuska.

Precipitation.—The average was 0.20 above the normal; greatest monthly, 5.73, at Stofiel; least monthly, 0.00, at Hot Springs.

Wind.—Prevailing direction, southwest.—*Prof. Charles W. Friend, Carson City, director; F. A. Carpenter, Observer, Weather Bureau, assistant.*

NEW ENGLAND.

Temperature.—The mean was 2.2 below the normal; maximum, 59, at Farmington, 10th; minimum, —32, at Fort Kent, 8th; greatest monthly range, 85, at Farmington; least monthly range, 38, at Provincetown.

Precipitation.—The average was 2.93 above the normal; greatest monthly, 9.44, at Kingston (*a*); least monthly, 0.98, at Fort Kent.

Wind.—Prevailing direction, northwest.—*J. Warren Smith, Observer, Weather Bureau, Boston, director.*

NEW JERSEY.

Temperature.—The mean was 1.4 below the normal; maximum, 63, at Woodbine and Cape May, 15th; minimum, —1, at Pochunk Mountain and Newton, 5th, and at Somerville, 21st; greatest monthly range, 57, at Tenafly; least monthly range, 45, at Lambertville, Trenton, and Camden.

Precipitation.—The average was 2.27 above the normal; greatest monthly, 8.90, at South Orange; least monthly, 3.14, at Barnegat.

Wind.—Prevailing direction, northwest.—*E. W. McGann, Observer, Weather Bureau, New Brunswick, director.*

NEW MEXICO.

Temperature.—Maximum, 82, at Roswell, 3d; minimum, —5, at Chama, 25th; greatest monthly range, 72, at Roswell; least monthly range, 37, at Santa Fe.

Precipitation.—Greatest monthly, 4.32, at Chama; least monthly, trace, at Los Lunas.

Wind.—Prevailing direction, west.—*H. B. Hersey, Observer, Weather Bureau, Santa Fe, director.*

NEW YORK.

Temperature.—The mean was 3.2 below the normal; maximum, 57, at Poughkeepsie, 15th; minimum, —21, at Number Four, 21st; greatest monthly range, 65, at Glens Falls; least monthly range, 40, at Le Roy.

Precipitation.—The average was 1.92 above the normal; greatest monthly, 9.49, at Eden Center; least monthly, 0.86, at Atlanta.

Wind.—Prevailing direction, northwest.—*Prof. E. A. Fuertes, Dean of the College of Civil Engineering, Cornell University, Ithaca, director; R. M. Hardinge, Observer, Weather Bureau, assistant.*

NORTH CAROLINA.

Temperature.—The mean was 0.5 below the normal; maximum, 79, at Rockingham, 2d; minimum, 14, at Bakersville, 23d; greatest monthly range, 58, at Bakersville; least monthly range, 35, at Hatteras.

Precipitation.—The average was 1.14 above the normal; greatest monthly, 11.37, at Highlands; least monthly, 1.85, at Currituck Inlet.

Wind.—Prevailing direction, northwest.—*Dr. Herbert B. Battle, Raleigh, director; C. F. von Herrmann, Observer, Weather Bureau, assistant.*

NORTH DAKOTA.

Temperature.—The mean was 6.0 below the normal: maximum, 52, at Medora, 16th; minimum, —54, at Willow City, 1st; greatest monthly range, 99, at Medora; least monthly range, 69, at Churchs Ferry.

Precipitation.—The average was 0.01 below the normal; greatest monthly, 1.70, at Mayville; least monthly, trace, at several stations.

Wind.—Prevailing direction, northwest.—*W. H. Fallon, Observer, Weather Bureau, Bismarck, director.*

OHIO.

Temperature.—The mean was 2.0 below the normal; maximum, 68, at Thurman, 14th; minimum, —14, at Millport, 21st; greatest monthly range, 64, at Millport; least monthly range, 39, at Tyrone.

Precipitation.—The average was 1.16 above the normal; greatest monthly, 7.65, at Columbus; least monthly, 2.10, at Marion.—*L. N. Bonham, Columbus, director; C. M. Strong, Observer, Weather Bureau, secretary and assistant.*

OKLAHOMA.

Temperature.—Maximum, 82, at Guthrie, 20th; minimum, —3, at Gate City, 2d; greatest monthly range, 76, at Fort Supply; least monthly range, 56, at South McAlester.

Precipitation.—Greatest monthly, 2.45, at South McAlester; least monthly, 0.40, at Anadarko and Stillwater.

Wind.—Prevailing direction, north.—*J. I. Widmeyer, Observer, Weather Bureau, Oklahoma City, director.*

OREGON.

Temperature.—The mean was 1.9 below the normal; maximum, 63, at Langlois, 19th; minimum, – 21, at Heppner, 1st; greatest monthly range, 73, at Heppner; least monthly range, 21, at Bandon.

Precipitation.—The average was 1.42 above the normal; greatest monthly, 16.97, at Glenora; least monthly, 0.20, at Bake Oven.

Wind.—Prevailing direction, southwest.—*Hon. H. E. Hayes, Master State Grange, Portland, director; B. S. Pague, Local Forecast Official, Weather Bureau, assistant.*

PENNSYLVANIA.

Temperature.—The mean was 1.7 below the normal; maximum, 60, at Aqueduct, 15th; minimum, —16, at Saegerstown, 21st; greatest monthly range, 63, at Saegerstown, Smethport, Aqueduct, and York; least monthly range, 39, at Kilmer.

Precipitation.—The average was 2.73 above the normal; greatest monthly, 9.28, at Mahoning; least monthly, 2.92, at Wysox.

Wind.—Prevailing direction, northwest.—*Under direction of the Franklin Institute, Philadelphia; W. P. Tatham, director; H. L. Ball, Observer, Weather Bureau, assistant.*

SOUTH DAKOTA.

Temperature.—The mean was 5.7 below the normal; maximum, 63, at Midland, 19th; minimum, —42, at Aberdeen and Webster, 1st; greatest monthly range, 96, at Ashcroft; least monthly range, 65, at Travare.

Precipitation.—The average was 0.43 above the normal; greatest monthly, 2.90, at Webster; least monthly, 0.45, at Midland and Rapid City.

Wind.—Prevailing direction, northwest.—*S. W. Glenn, Local Forecast Official, Weather Bureau, Huron, director.*

TENNESSEE WEATHER AND CROP SERVICE.

Temperature.—The mean was 1.0 below the normal; maximum, 75, at Hohenwald, 1st; minimum, 10, at Austin and Clarksville, 8th; greatest monthly range, 63, at Hohenwald; least monthly range, 43, at Rogersville.

Precipitation.—The average was 0.82 above the normal; greatest monthly, 10.91, at Dunlap; least monthly, 3.76, at Florence Station.

Wind.—Prevailing directions, north and south.—*J. B. Marbury, Local Forecast Official, Weather Bureau, Nashville, director.*

TEXAS.

Temperature.—The mean was 2.5 above the normal; maximum, 95, at Fort Ringgold, 28th; minimum, 1, at Coldwater, 1st; greatest monthly range, 72, at Quanah; least monthly range, 41, at Houston.

Precipitation.—The average was 0.51 below the normal; greatest monthly, 6.27, at Corpus Christi; least monthly, 0.00, at Fort McIntosh, Quanah, Menardville, and Sierra Blanca.

Wind.—Prevailing direction, north.—*D. D. Bryan, Galveston, director; I. M. Cline, Local Forecast Official, Weather Bureau, assistant.*

UTAH.

Temperature.—Maximum, 70, at Saint George, 20th; minimum, —32, at Scofield, 14th; greatest monthly range, 81, at Scofield; least monthly range, 38, at Snowville.

Precipitation.—Greatest monthly, 2.95, at Heber; least monthly, 0.30, at Losee.

Wind.—Prevailing direction, northwest.—*G. N. Salisbury, Observer, Weather Bureau, Salt Lake City, director.*

VIRGINIA.

Temperature.—Maximum, 75, at Richmond, 16th; minimum, 7, at Stephens City, 21st; greatest monthly range, 64, at Richmond; least monthly range, 44, at Blacksburg.

Precipitation.—Greatest monthly, 7.53, at Big Stone Gap; least monthly, 2.48, at Woodstock.

Wind.—Prevailing direction, southwest.—*Dr. E. A. Craighill, Lynchburg, director; J. N. Ryker, Observer, Weather Bureau, assistant.*

WASHINGTON.

Temperature.—The mean was 6.0 below the normal; maximum, 57, at Chehalis, 16th; minimum, —29, at Fort Spokane, 2d; greatest monthly range, 76, at Fort Spokane; least monthly range, 32, at Silver Creek.

Precipitation.—The average was 0.51 above the normal; greatest monthly, 11.83, at Neah Bay; least monthly, 1.21, at Ellensburg.

Wind.—Prevailing direction, south.—*H. F. Alciatore, Observer, Weather Bureau, Olympia, director.*

WEST VIRGINIA.

Temperature.—Maximum, 71, at Nuttallburg, 1st; minimum, —6, at Davis, 21st; greatest monthly range, 64, at New Cumberland; least monthly range, 50, at Bluefield.

Precipitation.—Greatest monthly, 6.70, at Central Station; least monthly, 1.65, at Kingwood.

Wind.—Prevailing direction, southwest.—*W. W. Dent, Observer, Weather Bureau, Parkersburg, director.*

WISCONSIN.

Temperature.—The mean was about 5.0 below the normal; maximum, 56, at Koepenick, 13th; minimum, —35, at Whitehall, 8th, and at Stevens Point, 4th.

Precipitation.—The average was about 1.00 above the normal in the northwestern part of the state, and about 1.00 below in the southeastern part; greatest monthly, 4.10, at Bayfield; least monthly, 0.64, at New Holstein.

Wind.—Prevailing direction, west.—*W. L. Moore, Local Forecast Official, Weather Bureau, Milwaukee, director.*

WYOMING.

Temperature.— Maximum, 60, at Wheatland, 4th; minimum, —30, at Fort McKinney, 1st; greatest monthly range, 83, at Fort McKinney; least monthly range, 54, at Camp Pilot Butte.

Precipitation.—Greatest monthly, 1.64, at Lander; least monthly, 0.11, at Laramie.

Wind.—Prevailing direction, west.—*E. M. Ravenscraft, Observer, Weather Bureau, Cheyenne, director.*

METEOROLOGICAL TABLES.

Meteorological record of voluntary and other co-operating observers, February, 1893.

Stations.	Temperature. (Fahrenheit.) Max.	Min.	Mean	Precip'n.
Alabama.	°	°	°	*Ins.*
Alco	79	32	57.9	.....
Bermuda *†5	75	32	56.7	.....
Brewton †	76	30	56.5	6.08
Citronelle †	72	35	58.7	4.47
Claiborne Landing †	.....	.....	.....	4.93
Clanton †	73	34	54.1	5.56
Cordova †	.....	.....	.....	6.33
Daphne †	76	34	56.9	4.13
Decatur *a* †	.....	.....	.....	5.87
Demopolis †	.....	.....	.....	7.05
Fayette †	75	25	50.4	6.51
Florence *a* †	.....	.....	.....	6.08
Florence *b* †1	72	14	48.4	5.73
Gadsden †	.....	.....	.....	7.67
Geneva †	82	40	61.1	4.80
Greensboro †1	76	28	52.5	8.46
Healing Springs †	80	33	54.7	6.11
Highland Home †	77	34	54.8	5.16
Livingston *a* †1	74	29	52.6	9.39
Livingston *b* †	.....	.....	.....	9.37
Lock No. 4*	.....	32	.....	9.58
Lynn *a* †	.....	.....	.....	6.13
Lynn *b* †1	72	30	49.8	7.45
Maple Grove *1	81	28	48.4	6.87
Marion †	.....	.....	.....	5.86
Maysville †1	72	23	51.1	11.78
Mount Willing †	78	34	56.3	4.70
Newbern †	74	30	53.1	7.72
Newberg †	74	15	48.3	4.74
Oxanna *†1	65	31	47.4	8.90
Scottsboro	71	22	47.7	7.33
Selma *a* †	.....	.....	.....	4.90
Sturdevant †	.....	.....	.....	2.30
Talladega †	.....	.....	.....	9.96
Tallassee Falls †	.....	.....	.....	8.10
Tuscaloosa †	.....	.....	.....	8.27
Tuscumbia *b* †	.....	.....	.....	6.40
Union †	72	29	53.1	10.45
Union Springs *a* †1	80	33	53.3	6.30
Valley Head †1	68	22	44.8	7.04
Warrior †	.....	.....	.....	6.86
Wetumpka *	.....	36	.....	4.71
Wilsonville †	.....	.....	.....	8.96
Alaska.				
Killisnoo †1	44	—10	27.1	3.70
Metlakahtla †	48	— 5	30.7	8.97
Arizona.				
Antelope Valley †	.....	.....	.....	0.24
Aris. Can. Co. Dam. †	81	33	58.4	0.00
Benson *8	73	35	51.0	0.00
Bisbee †1	72[e]	24	49.0	0.88
Casa Grande *8	76	30	55.7	0.00
Chiricahua Mts †	.....	.....	.....	1.08
Crittenden *†5	78	25	51.6	1.06
Dragoon	.....	.....	.....	0.77
Dragoon Summit *5	76	30	53.3	1.44
Dudleyville †1	77	30	54.4	0.40
Farleys Camp [2]	.....	.....	50.7	0.00
Flagstaff *†1	58	6	35.3	1.50
Florence †	78	31	55.2	0.04
Fort Apache	67	15	42.2	1.10
Fort Bowie	64	21	47.2	0.80
Fort Grant	72	23	48.4	0.59
Fort Huachuca	73	17	49.8	0.80
Fort Mohave	87	27	55.8	T.
Gila Bend *a* †1	80	32	60.1	0.00
Gila Bend *b* *8	88	38	62.6	0.00
Holbrook †	68	11	41.0	0.02
Maricopa *8	73	40	55.4	0.00
Arizona—Cont'd.				
Mount Huachuca †	73	16	48.4	0.82
Natural Bridge †	.....	.....	.....	1.20
Oracle †1	69	27	47.8	.....
Oro	.....	.....	.....	0.58
Palomas †	83	24	54.6	0.00
Pantano *8	64	30	48.4	0.25
Payson *1	66	20	40.0	0.60
Peoria †	77	31	56.4	T.
Phœnix *a* †	82	28	56.4	.....
Red Rock *†5	80	25	59.9	0.85
Reymert †	78	31	52.9	0.60
Rye †	.....	.....	.....	0.03
San Carlos	79	22	49.8	0.55
San Simon *8	80	30	51.7	0.00
Show Low	.....	.....	.....	1.16
Signal †	77	25	53.4	T.
Teviston	.....	.....	.....	1.42
Texas Hill *8	89	32	58.2	0.00
Tucson *a* †	77	32	54.8	0.88
Tucson *b* *8	75	30	49.9	1.31
Walnut Grove †	.....	.....	.....	0.08
Walnut Ranch *†1	68	24	44.0	0.96
Whipple Barracks	69	14	40.4	0.47
Wilgus †	.....	.....	.....	1.10
Willcox *8	70	24	51.2	0.10
Winslow *†5	64	18	41.4	.....
Wood Canyon	.....	.....	.....	2.50
Yuma *8	82	45	60.4	.....
Arkansas.				
Arkadelphia †	.....	.....	.....	5.42
Arkansas City †	.....	.....	.....	4.84
Brinkley †	65	16	41.7	4.32
Camden *a* †	.....	.....	.....	4.02
Camden *b* †1	72	24	47.6	4.20
Conway *1	62	20	41.7	2.06
Corning †	64	6	36.4	3.28
Dallas †	67	19	43.2	2.88
Dardanelle †	.....	.....	.....	2.34
Fayetteville †	66	6	38.5	4.78
Forrest †	72	12	45.2	4.95
Fulton †	.....	.....	.....	1.90
Gaines Landing †	.....	.....	.....	5.16
Harrison †	66	2	37.9	3.54
Helena *a* †	.....	.....	.....	5.31
Helena *b* †	71	18	45.8	4.75
Hope *†1	71	27	46.5	3.01
Hot Springs	74	14	44.8	4.78
Keesees Ferry †	65	5	36.9	4.20
Kirby †	64	20	41.0	4.30
Lonoke *1	72	20	46.2	5.19
Madding [3]	.....	.....	42.8	6.63
Melbourne †	64	3	39.0	2.34
Mount Nebo †	70	12	41.8	3.70
New Gascony *1	66[g]	22[f]	45.0[h]	5.64
Newport *a* †	.....	.....	.....	3.82
Newport *b* †	58	10	35.2	3.09
Osceola †1	71	14	42.4	5.85
Ozark †	66	18	42.6	2.80
Pine Bluff †	72[i]	20[d]	47.0[d]	4.15
Prescott †	73	25	48.6	3.64
Rogers †	64	3	34.0	4.10
Russellville †	66	12	43.4	2.64
Searcy †1	64	16	40.6	4.00
Stuttgart †	72	20	45.4	4.83
Warren †	.....	.....	.....	2.55
Washington *b* *1	70	26	46.5	3.83
Winslow *†1	57	4	34.4	2.92
California.				
Agnew [1]	71	33	48.4	1.94

Meteorological record of voluntary observers, &c.—Continued.

Stations.	Temperature. (Fahrenheit.) Max.	Min.	Mean	Precip'n.
California—Cont'd.	°	°	°	*Ins.*
Alcalde *8	67	35	50.2	1.88
Alvarado †	88	33	52.8	3.00
Anaheim *8	78	42	54.5	2.06
Anderson *1	68	24	42.9	3.63
Antioch *8	67	37	51.4	1.88
Aptos *8	70	30	47.4	3.41
Arcata	68	26	46.5	6.26
Arlington Heights	78	36	53.8	1.43
Athlone *8	70	32	51.1	2.83
Auburn *8	77	29	51.9	4.74
Bakersfield *a* *8	71	32	52.2	0.88
Bakersfield *b* †	75	22	48.4	0.76
Ballast Point L. H.	.....	.....	.....	0.45
Beaumont *8	70	31	51.0	2.00
Belmont *8	67	39	57.7	.....
Berendo *8	70	30	50.3	1.80
Berkeley	66	32	48.4	3.28
Bishop Creek *8	69	26	43.1	1.12
Boca *8	55	—14	24.4	8.90
Borden *8	70	29	47.6	2.07
Boulder Creek *8	65	29	45.0	9.57
Brentwood *8	64	31	48.7	2.55
Brighton *8	67	31	43.2	2.50
Byron *8	64	32	48.8	2.34
Caliente *8	70	33	49.7	2.15
Calistoga *8	75	26	48.4	8.37
Campo Seco	.....	.....	.....	3.05
C. Mendocino L. H.	.....	.....	.....	2.04
Capitola *8	70	32	51.4	.....
Castroville *8	68	35	51.7	2.78
Centerville *1	72	.....	52.6	2.73
Chico *8	72	30	49.3	4.14
Chino *6	78	34	54.3	2.81
Cisco *8	41	10	25.8	8.50
Citrus *2	70	.....	41.7	1.70
Claremont †	74	32	51.2	3.69
Cloverdale *	70	28	.....	6.63
Colegrove	.....	.....	.....	2.22
Colfax *8	80	26	46.2	5.68
Colton *8	75	33	51.9	2.91
Colusa †	59	34	45.8	1.28
Corning *5	69	25	46.0	3.00
Crescent City	.....	.....	.....	8.09
Crescent City L. H.	.....	.....	.....	7.72
Crofton *8	80	36	50.6	2.88
Davisville *a* *8	69	32	48.6	4.09
Davisville *b*	87	32	58.3	2.83
Delano *8	71	32	48.3	1.10
Delta *8	72	24	45.8	2.10
Downey *8	86	37	58.1	2.58
Drytown	65	26	43.5	3.69
Duarte [1]	78	37	53.6	3.62
Dunnigan *8	64	26	38.8	3.64
Dunsmuir *8	55	10	37.6	6.40
East Brother L. H.	.....	.....	.....	1.20
Edgwood *8	48	10	32.9	0.20
Edmanton *1	59	13	33.7	13.07
El Casco *8	75	30	49.3	.....
Eldorado *8	67	29	45.9	2.56
Elmira *8	72	31	48.8	2.85
El Verano *8	70	32	50.3	4.29
Emigrant Gap *8	49	16	33.2	6.38
Esparto *8	70	30	48.7	3.93
Evergreen	.....	.....	.....	2.20
Exeter *8	70	35	51.5	1.80
Fall Brook *1	79	38	51.6	3.72
Farmington *8	68	30	50.0	2.41
Felton *8	74	28	50.5	5.88
Fernando *8	76	35	52.4	3.67
Florence *8	76	40	52.9	0.00
California—Cont'd.				
Florin *5	68	28	48.0	2.34
Folsom City *a* *8	67	30	49.3	3.05
Folsom City *b*	.....	.....	.....	2.93
Fort Bidwell	44	13	26.4	2.92
Fouts Springs *5	52	— 8	29.7	7.11
Fresno *8	71	28	48.2	1.75
Fruto *8	67	28	48.1	3.80
Galt *8	71	33	49.6	2.89
Georgetown †	66	26	42.1	8.20
Gilroy *8	70	22	49.8	4.34
Girard *8	62	27	42.0	3.47
Glen Ellen *8	70	29	48.3	6.49
Glendora	.....	.....	.....	0.45
Goshen *8	70	28	48.1	0.00
Grass Valley *a*	.....	.....	.....	6.83
Grass Valley *b*	63	24	39.0	6.35
Gridley	.....	.....	.....	3.65
Haywards *8	65	34	46.3	2.56
Healdsburg	.....	.....	.....	7.62
Hollister *5	74	29	48.1	2.87
Hornbrook *5	58	14	36.4	1.25
Humboldt L. H.	.....	.....	.....	4.75
Huron *8	68	29	47.6	0.95
Hyde Ranch	.....	.....	.....	2.28
Hydesville †	61	25	44.1	5.21
Independence †	66	21	43.1	2.91
Indio *8	90	40	61.7	0.00
Ione *5	68	26	47.7	1.22
Iowa Hill *1	67	28	43.4	5.80
Jolon	.....	.....	.....	3.29
Julian †	67	26	44.8	3.72
Keeler *8	62	30	44.4	0.75
Keene *8	67	27	42.1	3.26
Kennedy Gold Mine *1	64	24	42.3	4.91
King City *8	78	28	.....	1.63
Kingsburg *8	68	32	49.3	1.77
Knights Landing *8	67	37	48.9	2.63
Lagrange *5	66	31	48.8	2.42
Lathrop *8	67	32	49.6	1.44
Laurel *8	76	31	47.7	8.36
Lemoore *a* *8	75	29	49.2	1.06
Lemoore *b*	80	29	50.3	1.08
Lime Point L H	.....	.....	.....	2.19
Livermore *8	68	31	49.1	3.12
Livingston *8	70	35	49.8	1.83
Lodi	66	31	48.0	2.66
Long Beach *8	77	34	52.9	.....
Los Angeles *8	78	38	54.3	4.14
Los Banos *8	65	31	49.7	2.20
Los Gatos *a* *8	70	31	49.1	4.65
Los Gatos *b*	62	32	46.5	5.78
Mammoth Tank *8	82	32	56.7	0.00
Mare Island L. H	.....	.....	.....	2.04
Mariposa *	64	25	.....	6.81
Martinez * 8	68	32	48.1	2.51
Marysville *a* *8	76	31	47.8	3.39
Menlo Park *8	68	35	49.1	2.75
Merced *8	67	32	48.7	2.31
Middletown *†1	76	25	44.9	7.82
Mills College	.....	.....	.....	3.54
Milton (near) *1	65	32	47.7	2.87
Modesto *8	71	31	47.9	2.02
Mohave *8	70	28	48.2	0.26
Mokelumne Hill	.....	.....	.....	4.50
Monson *8	70	34	49.3	1.86
Montague *8	58	17	39.3	1.88
Monterey *8	68	32	51.7	3.34
Monterey (Hotel del Monte) *8	69	33	50.3	.....

Meteorological record of voluntary observers, &c.—Continued.

Stations.	Temperature. (Fahrenheit.) Max.	Min.	Mean	Precip'n.
California—Cont'd.	°	°	°	*Ins.*
Mountain View	.....	.....	.....	2.97
Mount Glenwood *[1]	71[f]	38[f]	54.2[f]	4.61
Napa City *[a 8]	74	26	49.1	3.15
Napa City *[b 1]	73	33	51.8	2.19
National City †[1]	82	34	54.4	1.08
Needles *[a] †	77	36	57.8	0.00
Needles *[b] †[2]	76	.....	54.4	.....
Nevada City *†[1]	63	24	39.0	8.29
New Almaden *[8]	67	36	50.0	3.94
Newark *[8]	76	40	55.7	1.86
Newcastle *[a] †	66	26	44.3	4.11
Newcastle *[b 8]	68	28	45.3	3.07
Newhall *[8]	80	27	50.8	1.34
Newman *[8]	65	42	56.0	2.87
Niles *[8]	65	35	48.4	2.50
Nordhoff †	78	29	50.3	3.64
Norwalk *[8]	80	42	56.3	2.44
Oakdale *[4]	69	26	43.8	2.36
Oakland *[b 8]	66	38	51.1	3.19
Ogilby *[8]	87	43	60.1	0.00
Oleta *[1]	62	27	42.1	4.88
Ontario *[8]	78	38	55.0	2.97
Orangevale †	68	28	47.3	3.17
Orland *[8]	72	30	48.5	3.22
Oroville *[8]	72	31	50.8	3.82
Pajaro *[8]	68	35	51.2	3.44
Palermo †	70	25	46.6	2.92
Palm Springs *[8]	85	40	59.6	0.00
Pasadena[2]	77*	34	51.6	3.03
Paso Robles *[8]	72	25	46.6	4.09
Petaluma *[8]	73	32	51.7	2.34
Piedras Blancas L.H	.....	.....	.....	3.17
Pigeon Point L. H	.....	.....	.....	1.72
Placerville *[a 8]	67	28	45.3	7.52
Placerville *[b 1]	60	22	39.4	6.94
Pleasanton *[a 8]	80	30	49.9	3.03
Pleasanton *[b]	66	30	47.1	2.72
Pt Ano Nuevo L. H.	.....	.....	.....	3.15
Point Arena L. H	.....	.....	.....	4.51
Point Bonita L. H.	.....	.....	.....	3.01
Pt Conception L. H.	.....	.....	.....	2.44
Point Fermin L H	.....	.....	.....	2.22
Point George L H.	.....	.....	.....	5.05
Point Hueneme LH	.....	.....	.....	3.04
Point Loma L. H	.....	.....	.....	0.24
Point Montara L. H.	.....	.....	.....	2.47
Point Pinos L. H.	.....	.....	.....	3.79
Point Reyes L. H.	.....	.....	.....	2.58
Point Sur L. H.	.....	.....	.....	2.45
Pomona *[8]	75	30	50.0	3.50
Portersville *[a 8]	72	34	51.7	1.85
Poway	.....	.....	.....	2.42
Puente *[8]	75	36	52.7	4.61
Ravenna *[8]	74	31	50.1	0.20
Red Bluff *[8]	76	36	47.7	2.30
Redding *[a 8]	68	27	44.0	4.75
Redding *[b]	69	27	45.2	3.90
Redlands *[a]	.....	.....	.....	3.93
Redlands *[b 8]	73	36	50.7	2.05
Rialto	85	33	55.5	3.54
Rio Vista	.....	.....	.....	2.31
Riverside *[a †1]	79	32	50.4	1.84
Rocklin *[8]	72	26	50.7	3.22
Roe Island L H	.....	.....	.....	1.78
Rumsey *[8]	70	29	49.1	5.42
Sacramento *[a 1]	64	24	43.0	3.12
Sacramento *[b 8]	77	30	49.6	2.55
Sacramento *[c 8]	63	36	49.4	2.55
Salinas *[a]	75[j]	31[j]	49.2[j]	2.91
Salinas *[b 8]	62	32	45.1	2.93
Salton *[8]	79	43	60.7	0.00
San Ardo *[a 8]	72	30	49.0	1.31
San Ardo *[b †]	70	27	47.4	1.47
San Bernardino †	77	30	52.6	3.37
San Gabriel *[8]	80	35	54.9	3.04
Sanger Junction *[8]	73	31	48.9	2.15
San Jacinto †	85	25	51.3	1.66
San Jose *[a 8]	67	36	50.0	2.68
San Jose *[b]	71	26	48.1	2.56
San Luis L. H.	.....	.....	.....	3.30
San Luis Obispo	.....	.....	.....	0.69
San Mateo *[8]	65	36	49.1	3.68
San Miguel *[8]	68	30	48.5	1.31
San Pedro *[8]	78	40	56.3	3.31
Santa Ana *[8]	84	40	56.9	2.46
Santa Barbara *[a]	72	38	53.4	3.10
Santa Barbara *[b 8]	69	47	55.9	3.55
Santa Barbara L. H.	.....	.....	.....	3.06
Santa Clara *[6]	69	34	49.6	2.83
Santa Cruz *[a 8]	75	35	54.5	2.88
Santa Cruz *[b †1]	72	35	49.4	4.25
Santa Cruz L. H.	.....	.....	.....	3.84
Santa Margarita *[8]	68	23	46.9	9.05
Santa Maria[1]	78	31	51.4	3.10
Santa Monica *[8]	73	38	52.4	3.20
Santa Paula *[8]	68	34	52.6	2.81
Santa Rosa *[8]	71	30	49.6	5.56
Saticoy †	.....	.....	.....	3.18
Selma *[8]	68	30	48.1	1.60
Shasta †	57	8	36.1	4.12
Shingle Springs *[8]	60	30	45.1	4.17
Sims *[8]	60	13	36.7	4.39
Sisson *[8]	52	6	35.2	2.80
Soledad *[8]	68	32	49.2	1.38
Sonoma *[6]	80	30	50.5	3.53

Stations.	Temperature. (Fahrenheit.) Max.	Min.	Mean	Precip'n.
California—Con.	°	°	°	*Ins.*
S. E. Farrallon L. H.	.....	.....	.....	1.77
South Vallejo *[8]	69	33	50.4	2.14
Spadra *[8]	75	33	53.3	0.00
Stockton *[a]	66	31	47.8	2.14
Stockton *[b 8]	57	34	47.6	1.57
Suisun City *[8]	79	33	50.9	2.27
Susanville *†[1]	52	3	29.6	3.53
Sutter Creek *[5]	60	24	40.0	3.53
Tehachapi *[a 8]	63	28	39.6	3.01
Tehachapi *[b]	66	19	40.1	2.13
Tehama *[8]	70	32	50.8	4.99
Templeton *[8]	72	30	48.8	4.39
Towles *[8]	65	24	39.8	8.65
Tracy *[8]	64	30	49.2	1.14
Traver *[8]	72	28	46.2	1.68
Trinidad L H	.....	.....	.....	6.11
Tropico *[8]	80	38	54.1	2.28
Truckee *[8]	46	—10	25.1	8.02
Tulare *[a 8]	68	30	48.3	1.13
Tulare *[b]	.....	.....	.....	1.55
Tulare *[c]	82	28	50.8	1.20
Turlock *[a 8]	70	32	50.1	2.01
Turlock *[b 1]	66	26	45.8	1.89
Ukiah †	61	24	43.8	6.75
Upper Lake	76	26	44.7	5.19
Upper Mattole *[1]	71	29	45.8	8.25
Vacaville *[a 1]	72	30	49.3	3.13
Vacaville *[b 8]	72	30	49.6	3.35
Valley Springs *[8]	70	33	50.2	3.46
Ventura †	85	36	55.6	3.02
Vina *[8]	68	29	48.2	3.24
Volcano Springs *[8]	85	33	63.2	0.00
Walnut Creek	70	32	49.0	3.64
Westley *[8]	60	35	48.3	1.57
Wheatland	68	30	46.9	3.17
Whittier *[8]	79	44	60.7	2.43
Williams *[a 8]	68	34	49.2	2.80
Willows *[a]	65	28	45.9	3.53
Willows *[b 8]	68	30	46.9	4.30
Winchester †	89	29	52.5	0.68
Winters *[8]	70	29	50.6	3.87
Woodland *[8]	67	30	47.6	2.78
Yerba Buena L. H.	.....	.....	.....	2.60
Yreka †	52	10	34.4	2.53
Yuba City *[5]	58	38	47.5	3.22
Colorado.				
Abbott	.....	.....	.....	0.33
Agate *[2]	59	— 2	26.9	0.40
Alma †	40	—13	16.0	2.45
Amherst †	.....	.....	.....	1.10
Arboles	.....	.....	.....	1.20
Avoca	.....	.....	.....	1.00
Bennet *[1]	66	2	29.5	1.00
Box Elder	.....	.....	.....	0.50
Breckenridge †	35	—20	11.5	8.44
Brush †	.....	.....	.....	0.55
Byers *[1]	60	1	33.5	0.20
Castle Rock †	57	— 2	27.9	0.95
Cheyenne Wells *†[1]	56	— 4	26.4	T.
Climax *†[1]	34	— 9	8.9	9.00
Collbran	.....	.....	.....	3.79
Como (near) †[1]	38	— 7	15.1	1.17
Cope †	61	— 6	28.8	0.42
Crook †[1]	60	—14	23.4	0.48
Cumbres †	34	— 9	17.0	7.00
Deer Trail *[3]	60	0	28.8	0.40
Delta †	59	— 1	29.9	1.70
Dillon †	.....	.....	.....	4.78
Downing †	69	— 8	30.5	0.58
Dumont *[1]	44	— 5	21.9	1.39
East Dale	.....	.....	.....	0.50
First View *[6]	66	— 4	31.2	0.05
Fort Collins (near)	.....	.....	.....	0.10
Fruita †[1]	52	— 3	29.8	1.57
Garnett	.....	.....	.....	0.63
Gaynor	.....	.....	.....	0.84
Georgetown †	44	— 1	23.2	1.81
Glen Eyrie †	54	0	30.0	0.05
Gold Hill	48	2	24.4	1.75
Grand Junction †	56	5	32.7	1.77
Greeley †	68	—10	29.6[f]	0.42
Greenhorn †	56	— 4	27.2	2.40
Grover †	60	—14	24.8	0.20
Hugo *[1]	66	—11	25.8	0.04
Hugo (near) †	65	— 5	27.3	0.08
Husted †	61	0	29.4	0.12
Idaho Springs †	52	— 4	26.4	0.29
Julesburg †	63	—13	28.7	0.52
Kirk	.....	.....	.....	0.35
Kit Carson *[1]	55	— 8	24.0	0.10
La Jara †	52	— 5	27.3	1.09
Lamar †	74	— 5	34.0	0.11
La Porte	.....	.....	.....	0.60
Las Animas †	70	— 7	33.8	0.10
Lavender †	69	—11	30.6	1.68
Lay *†[1]	43	—19	17.2	2.15
Le Roy *†[1]	57	—13	25.3	1.20
Leslie	.....	.....	.....	0.70
Livermore	55	— 6	27.0	0.48
Longmont †	61[h]	— 6[h]	25.4[h]	0.65
Loveland	.....	.....	.....	0.59
Manhattan	.....	0[f]	19.8[f]	0.47
Meeker †	50	—12	21.0	1.30
Middle Box Elder	.....	.....	.....	0.31
Minneapolis †	78	— 5	32.0	0.10

Meteorological record of voluntary observers, &c.—Continued.

Stations.	Temperature. (Fahrenheit.) Max.	Min.	Mean	Precip'n.
Colorado—Cont'd.	°	°	°	*Ins.*
Monte Vista *[a 1]	50	—17	22.4	1.13
Moraine †	53	—11	22.4	2.32
Orchard †	65	—22	29.5	0.60
Pagoda (near) †	44	—21	20.0	3.40
Paonia †	.....	.....	.....	3.55
Parachute †	50	—11	23.3	0.78
Red Cliff	.....	.....	.....	4.06
Rico	.....	.....	.....	4.25
River Bend *	70	4	.....	0.45
Robb †	63	—10	28.0	1.00
Rocky Ford †	71	— 1	33.3	0.07
Saint Cloud	.....	.....	.....	1.00
Sanborn	.....	.....	.....	0.00
San Luis †	55	— 4	27.4	1.01
Scissors †	.....	.....	.....	1.50
Sheridan Lake †	.....	.....	.....	T.
Smoky Hill Mine †.	58	— 6	27.0	2.10
Stamford *[1]	50	—14	20.1	4.25
Steamboat Spring †.	43	—29	17.3	3.90
Sunnyside[1]	60	—10	16.4	3.00
Table Rock	51	— 4	23.8	0.95
T. S. Ranch †	49	3	29.2	1.01
Thon †	65	10	28.6	0.05
Twin Lakes	.....	.....	.....	0.85
Vilas	.....	.....	.....	0.10
Villa Grove †	.....	.....	.....	0.89
Wallet †	.....	.....	.....	0.50
Ward District	.....	.....	.....	2.94
Watkins *[1]	62	2	29.2	0.42
Wilde	.....	.....	.....	0.20
Yuma	.....	.....	.....	0.90
Zuck	.....	.....	.....	0.07
Connecticut.				
Canton	52	— 5	24.0	6.01
Colchester	50	1	25.6	3.76
Falls Village	.....	.....	.....	6.23
Hartford *[b]	.....	.....	.....	6.38
Hartford *[c]	53	0	25.6	.....
Lake Konomoc	.....	.....	.....	7.94
Lebanon	.....	.....	.....	4.87
Middletown	55	— 2	26.4	7.53
New Hartford *[a †1]	43	— 6	17.6	6.62
New Hartford *[b]	.....	.....	.....	5.51
North Franklin	.....	.....	.....	4.95
N. Grosvenor Dale[1]	50	— 2	24.4	5.89
Norwalk *[5]	48	0	25.3	7.46
Southington *[1]	51	0	24.8	6.71
South Manchester	.....	.....	.....	6.24
Stevenson	.....	.....	.....	7.07
Storrs [1]	48	— 3	23.5	5.88
Thompson [1]	47	— 3	23.4	.....
Voluntown †[1]	50	— 3	26.7	8.46
Wallingford †	.....	.....	.....	8.08
Waterbury	51	1	25.6	7.37
West Simsbury	.....	.....	.....	5.94
Delaware.				
Dover †[1]	64	11	34.5	5.05
Kirkwood *[2]	58	.....	28.2	.....
Millsboro[1]	66	12	36.2	4.43
Seaford †[1]	66	12	36.3	4.85
District of Columbia.				
Dist'ing Reserv'r *[5]	61	13	35.0	3.53
Long Bridge †	.....	.....	.....	2.95
Rec'ing Reserv'r *[5]	60	12	34.6	3.67
West Washington[1].	66	11	37.0	4.33
Florida.				
Amelia †	78	40	59.8	7.70
Avon Park *†[1]	87	45	68.1	3.25
Bristol †	85	36	61.3	2.50
Brooksville †	81	41	64.4	6.18
Clermont †[1]	86	47	66.7	4.87
De Land *[b]	83	36	65.0	.....
Eustis †[1]	86	41	65.3	4.81
Federal Point †	82	40	62.5	9.53
Fort Meade †	85	34	65.8	2.10
Grasmere	85	42	66.6	.....
Green Cove Sp'gs †.	84	41	62.6	7.87
Homeland †[1]	86	35	64.6	2.43
Kissimmee †	.....	38	.....	3.67
Lake City †	82	44	65.0	3.53
Manateef †[1]	83	38	66.4	4.39
Merritts Island †	74	55	68.4	4.23
Moseley Hall †	77	40	62.0	3.61
Mullet Key †[1]	76	53	63.8	1.99
Myers †[1]	84	44	68.1	0.74
New Smyrna †	85	37	63.6	2.17
Ocala *†	84	42	64.1	3.83
Orange City †[1]	85	36	65.6	4.55
Orlando †	.....	.....	.....	1.51
Oxford *†[1]	81	39	63.9	6.16
Plant City †	88	37	67.0	3.10
St. Andrews Bay †.	79	43	61.0	2.37
Saint Francis B'ks.	84	44	61.4	7.98
St. Petersburg †[1]	84	43	66.0	2.04
Tallahassee †[1]	78	37	59.0	2.95
Tarpon Springs †	85	42	66.5	3.82
Georgia.				
Adairsville †	72	25	46.2	7.73
Alapaha †	80	30	56.8	4.28
Albany †	76	38	58.0	4.30
Americus †	81	25	54.0	4.31
Athens *[a 1]	67	29	48.4	8.55
Athens *[b †]	69	27	48.6	7.25
Blakely †	79	33	58.2	6.63
Brag †	79	27	54.6	4.96

Stations.	Temperature. (Fahrenheit.) Max.	Min.	Mean	Precip'n.
Georgia—Cont'd.	°	°	°	*Ins.*
Camak †	.....	.....	.....	4.78
Canton †	.....	.....	.....	8.68
Columbus †	75[h]	34[h]	53.8[h]	5.10
Cordele †	79	31	53.6	4.37
Dahlonega †	69	24	46.9	8.76
Darien †	84	33	60.4	3.98
Diamond †	68	22	44.5	7.33
Dublin †	78	29	53.0	4.90
Elberton †	70	28	46.6	7.94
Fleming †	.....	29	57.6	3.88
Forsyth *[1]	78	36	53.0	7.65
Gainesville †	72	26	47.2	6.38
Gillsville *†	72	26	47.8	6.44
Hawkinsville †	82	23	53.8	3.89
Hephzibah *†	72	33	52.7	4.70
Homerville †	80	34	59.2	4.67
Lafayette †	69	24	46.0	6.01
Lagrange *†	74	32	49.6	5.04
Lincolnton †	.....	.....	.....	0.98
Louisville †	78	28	51.8	5.63
Lumpkin †[3]	75*	35	53.2	5.17
Macon †	.....	.....	.....	4.79
Marietta †[1]	70	26	44.7	8.12
Marshallville †	79	32	57.6	3.82
Milledgeville †	76	27	51.4	5.57
Millen †	79	27	52.7	5.51
Morgan †	79[f]	45[f]	58.4[f]	0.08
Mount Vernon †	.....	.....	.....	4.41
Piscola	78	37	60.4	3.08
Point Peter *[1]	82	28	47.8	8.30
Poulan †[1]	80	27	54.5	4.23
Quitman *[b] †	80	30	61.4	2.32
Resaca †	.....	.....	.....	6.39
Rome †[1]	70	27	45.8	8.21
Talbotton †	77	28	50.5	6.23
Thomasville †	79	33	58.8	4.81
Toccoa †	70	28	48.1	6.23
Union Point †	69	30	51.5	6.64
Washington †	.....	.....	.....	7.62
Waynesboro †	.....	.....	.....	5.59
Idaho.				
American Falls †	39	—26	18.2	1.90
Boise Barracks	48	5	30.9	1.79
Bonanza City †	40	—21	16.4	2.00
Fort Sherman	49	—23	22.8	4.25
Garden Valley [1]	40	—12	25.1	4.00
Henrys Lake †	42	—27	15.9	3.20
Kootenai †[1]	49	—16	22.0	2.90
Moscow †[1]	44*	—15	27.4	3.70
Payette †	51	— 2	31.2	1.28
Ruthburg *†[1]	60	— 5	27.6	1.60
Illinois.				
Alton †	.....	.....	.....	3.34
Aurora *[a]	42	—15	20.2	2.25
Aurora *[b 1]	44	—12	20.9	3.21
Beardstown †	.....	.....	.....	2.01
Bloomington †	61	—13	24.0	3.13
Bushnell †	50	—10	21.0	1.47
Carlinville †	52	— 3	26.7	5.72
Chester †	.....	.....	.....	0.94
Collinsville †	53	0	30.4	2.90
Decatur *†[1]	53	— 7	24.3	.....
Dixon †[1]	42	—17	17.4	1.94
East Peoria[1]	56	—17	24.4	4.50
Effingham †	58	—12	23.2	3.02
Ellsworth †	51	—13	25.1	3.80
Fairmount †	48	— 8	27.2	0.85
Flora[1]	56	0	29.9	4.44
Fort Sheridan †	41[k]	—14	21.0	1.10
Galva †	41	—16	19.4	1.65
Golconda †	62	8	37.8	4.11
Greenville †[1]	58	— 3	28.8	3.72
Griggsville †	52	— 8	25.4	2.82
Havana †	52	— 8	26.9	3.49
Hennepin †	52	— 2	21.5	0.90
Jordans Grove †	58	1	30.8	1.77
Kankakee †	47	— 7	22.2	0.38
Louisville *[3]	54	3	29.4	3.20
McLeansboro *[1]	58	1	33.1	3.55
Martinsville †	51	— 2	28.9	4.42
Mascoutah *[5]	56	— 3	30.8	2.43
Mattoon[1]	53	3	30.5	2.71
Monmouth †	44	—15	20.4	2.24
Mount Carmel †	.....	.....	.....	4.81
New Haven †	.....	.....	.....	3.77
Olney *[a 1]	53	0	32.7	3.73
Olney *[b 1]	50	— 1	28.1	3.11
Oregon †	45	.....	.....	1.52
Oswego *[1]	44	—14	19.2	3.16
Ottawa †[1]	51	—12	22.4	3.03*
Palestine †[1]	55	2	30.4	4.39
Pana *†[1]	51	— 8	26.6	4.60
Peoria *[a] †	.....	.....	.....	2.73
Peoria *[b 1]	46	—10	26.0	2.92
Philo †[1]	52	— 6	26.7	4.51
Quincy †	.....	.....	.....	2.62
Rantoul *[5]	51	—11	24.1	3.57
Riley †	41	—18	16.0	1.55
Rockford[1]	41	—17	18.1	2.45
Rushville	52	—10	23.8	3.02
Saint John *[1]	59	6	35.6	2.93
Shawneetown †	.....	.....	.....	4.60
Sycamore *[1]	39	—12	19.5	2.12
Walnut †	46	—17*	19.2	1.78
Warsaw †	.....	.....	.....	1.66

Meteorological record of voluntary observers, &c.—Continued.

Stations.	Temperature. (Fahrenheit.) Max.	Min.	Mean	Precip'n.
Illinois—Cont'd.	°	°	°	*Ins.*
Watseka[2]	.....	.....	23.6	6.70
White Hall *[4]	49	— 5	25.4	2.31
Winnebago †[1]	41	—19	17.0	2.04
Indiana.				
Angola *[1]	47	— 8	23.0	4.06
Ashboro †	54	— 2	30.7	4.63
Bedford †	55	— 7	30.8	5.64
Butlerville	55	4	33.6	5.09
Cambridge City †	50	2	30.0	5.80
Columbia City *[1]	47	— 8	23.3	4.01
Columbus *[3]	54	7	31.6	4.40
Connersville †	55	5	32.2	5.85
Crawfordsville *†[1]	57	4	28.3	2.12
Degonia Springs *[6]	54	7	35.2	4.56
Delphi	54	— 3	29.4	4.62
Evansville †	.....	.....	.....	5.02
Farmland	51	4	28.8	5.46
Franklin *[1]	52	3	30.0	4.28
Hammond †	48	— 8	22.4	1.01
Hawpatch *†[1]	46	— 6	23.1	4.21
Irvington *†[3]	.....	2	28.3	5.59
Jeffersonville[1]	57	8	36.1	4.66
Kokomo †[1]	52	— 2	28.6	5.53
Laconia *[1]	59	4	35.3	4.58
Lafayette †	53	— 4	27.7	4.84
Logansport *a†	.....	.....	.....	5.30
Logansport *b*	50	— 4	25.6	2.39
Madison †	.....	.....	.....	4.10
Marengo *[1]	61	11	37.8	8.31
Marion †	59	— 3	27.4	5.46
Mauzy	51	1	29.6	0.09
Michigan City [1]	52	— 6	24.3	1.79
Mount Vernon *a†	.....	.....	.....	4.58
Mount Vernon *b*	55	5	33.6	4.70
Muncie *†[1]	54[d]	6[d]	31.6[d]	1.93
New Albany *†[1]	58	6	35.2	5.22
Point Isabel †	50	— 1	28.7	6.30
Princeton *†[1]	53	2	32.8	4.60
Rockville	55	— 3	27.4	5.10
Rushville †	.....	.....	.....	5.77
Seymour †	54	2	30.3	5.16
Shelbyville †	.....	.....	.....	5.20
Terre Haute †	.....	.....	.....	4.98
Union City	50	0	27.9	3.12
Vevay[1]	57	6	35.1	5.50
Vincennes †	.....	.....	.....	5.02
Worthington †	62	2	31.4	5.46
Indian Territory.				
Colbert †	.....	.....	.....	1.91
Fort Supply	74	— 2	33.9	0.62
Gwenndale †	63	4	34.0[e]	1.33
Lehigh *†	73	13	.....	1.55
Purcell †	79	6	42.6	0.76
South McAlester †	68	12	42.6	2.45
Tulsa †	.....	.....	.....	1.25
Iowa.				
Algona *[1]	38	—24	11.7	2.04
Alta *a* †	37	—22	11.0	1.32
Amana †	40	—17	15.6	1.35
Ames *b*	40	—24	13.4	1.88
Ames *c*	.....	.....	.....	2.11
Ames (near) *[1]	44	—20	17.9	1.60
Atlantic †[1]	50	—21	10.4	1.22
Audubon	43	—20	15.3	1.52
Belle Plaine [1]	41	—19	16.4	1.20
Blakeville *[1]	42	—20	14.4	2.60
Blockton †	48	—15	20.0	0.32
Bonaparte †[1]	44	—14	20.9	1.42
Carroll †	40[d]	—21	18.1[d]	2.99
Cedar Falls †	38	—23	14.6	1.90
Cedar Rapids †	42	—16	17.4	1.72
Centerville †	46	—16	21.2	2.10
Charles City †	40	—28	10.4	2.18
Clarinda †[1]	46	—15	18.2	1.12
Clinton[1]	40	—16	17.4	1.68
College Springs	44	—17	18.9	1.89
Corning *b* †	49	—17	18.3	0.45
Cresco †[1]	44	—27	9.3	1.23
Decorah †	48	—24	11.9	1.30
Delaware *[3]	40	—23	11.4	0.97
Denison[1]	47[e]	—19[e]	16.8[e]	2.45
Eagle Grove *[3]	.....	—25	8.8	1.40
Elkader †[1]	41	—27	14.9	1.13
Emmetsburg	40	—26	10.1	0.24
Fairfield †[1]	42	—13	18.9	0.99
Fayette †	38	—22	13.0	1.26
Fort Madison *†[1]	48	—10	25.0	1.39
Fulton *[1]	39	—26	16.1	1.05
Galva †	39	—20	14.4	0.70
Glenwood †	60	—18	22.1	.....
Grand Meadow *[1]	40	—24	14.4	1.76
Greenfield[1]	43	—21	15.7	1.37
Grinnell †	40	—17	17.9	0.82
Grundy Center[1]	40	—22	15.0	1.12
Hampton [1]	36	—23	11.4	2.91
Hopeville *†[1]	45	—16	18.5	0.42
Hopkinton *[1]	42	—17	18.9	1.35
Independence †[1]	40	—23	12.8	1.04
Indianola †	46	—17	18.8	0.90
Iowa City †	41	—18	18.6	1.75
Iowa Falls †[1]	37	—26	11.4	1.85
Jefferson †	40	—22	16.8	1.10
Keosauqua †	45	—11	22.0	1.44
Larrabee †	40	—23	12.7	0.79
Le Claire †	.....	.....	.....	1.12

Stations.	Temperature. (Fahrenheit.) Max.	Min.	Mean	Precip'n.
Iowa—Cont'd.	°	°	°	*Ins.*
Logan †	49	—16	17.4	1.50
Maquoketa	.....	.....	16.0	1.72
Marshall †	44	—17	17.4	0.62
Maxon *[1]	42	—18	17.5	1.00
Mechanicsville	39	—18	15.1	1.46
Monticello *†[1]	46	—20	14.6	1.32
Mount Pleasant *a*[2]	43	.....	19.9	1.05
Mount Vernon *[1]	44	—18	17.4	.....
Murray †	47	—16	18.4	0.60
Newton	41	—19	16.9	1.00
Osage *†[2]	.....	—21	9.7	2.33
Oskaloosa †[1]	42	—16	18.8	1.12
Panama †	42	—18	15.9	1.16
Richland *[1]	40	—19	18.2	1.16
Sac City †[1]	40	—21	11.2	1.20
Storm Lake †	39	—21	13.9	1.48
Tipton †	40	—18	16.8	2.30
Villisca †	55	—16	21.5	0.21
Vinton *[1]	37	—17	15.9	0.49
Washington	48	—15	20.6	0.30
Webster City *[1]	40	—26	13.3	1.84
Williams *[1]	39	—24	12.5	2.09
Winterset †	44	—18	17.4	0.94
Kansas.				
Abilene †	65	— 8	30.6	0.77
Allison *†[2]	57	—10	22.9	0.50
Altoona *†[3]	57	— 1	27.4	0.46
Atchison †	58	—10	20.2	1.35
Bucklin	.....	.....	.....	1.60
Buffalo Park *[5]	62	— 8	34.8	0.45
Cawker City *[1]	60	—14	28.8	0.01
Colby	77	—11	27.6	0.15
Coldwater	61	— 5	30.4	0.85
Collyer *[1]	64	—10	28.1	T.
Columbus †	63	— 1	31.1	1.19
Cunningham †[1]	67	— 4	27.8	0.88
Elco *[1]	62	— 6	30.1	1.64
Eldorado †	63	— 4	30.8	0.38
Ellis *[5]	70	0	32.0	.....
Emporia †[1]	60	— 4	31.5	0.20
Englewood *†[1]	66	— 4	29.4	1.10
Eureka Ranch †	65	—11	28.0	0.20
Fort Riley †	59	— 7	30.0	0.26
Gibson *[1]	62	— 7	26.9	0.01
Gove City *†[1]	65	— 9	26.9	0.10
Grainfield *[1]	64	— 6	28.2	T.
Greensburg †	57	— 2	29.6	0.92
Grenola	64	— 2	30.8	0.55
Grinnell *[1]	68	— 8	30.1	0.01
Havensville *†[1]	54	— 8	23.7	0.56
Hays City †	70	.....	.....	0.05
Hesston	54	— 8	25.9	0.91
Horton †	55	— 9	26.4	1.02
Hutchinson †	63	— 4	31.8	1.24
Independence †[1]	64	0	31.4	0.54
Kansas City †[1]	59	— 7	27.8	1.20
Kellogg	66	— 6	29.6	0.91
Kiowa †	69	— 1	32.4	1.15
Kirwin †	.....	.....	.....	0.00
La Crosse †	63	— 5	31.2	0.05
Lakin †	68	— 9	34.0	0.20
Lebo †	59	— 5	30.1	1.15
Leoti †	70	—10	30.7	0.13
Liberal †	64	— 4	32.5	0.25
McAllaster *[3]	72	—11	21.3	T.
McPherson †	60	— 6	27.0	0.67
Manhattan *a* †	.....	.....	.....	0.89
Manhattan *b*[1]	61	— 6	26.7	0.89
Manhattan *c* *[1]	55	— 6	23.9	0.71
Marion †[1]	62	— 5	27.0	0.74
Marmaton	.....	.....	.....	0.76
Minneapolis †	63	— 8	27.8	0.28
Monument *[1]	65	—18	22.9	0.11
Morland †	63	—11	27.8	0.51
Morse †	59	— 9	25.6	0.72
Morton †	78	— 1	33.8	0.06
Oberlin †	.....	.....	.....	0.74
Oswego †	67[d]	0[d]	29.4[d]	1.23
Page City *[1]	56	— 9	30.2	T.
Pauline	51[e]	0[e]	27.4[e]	1.38
Phillipsburg †	64	—15	29.5	0.20
Pleasant Dale *[1]	65	—13	26.5	0.10
Quinter *[5]	64	— 8	30.2	0.05
Rome *†[1]	62	1	33.3	0.60
Salina *†[1]	58	— 5	28.2	0.13
Sedan †[1]	63	— 2	31.4	0.64
Sharon Springs *[1]	72	— 3	35.8	0.05
Shields †	80	— 8	35.7	0.03
Sterling †	64	— 5	32.8	0.60
Syracuse	73	— 5	31.6	T.
Topeka	61	— 8	27.0	1.36
Tribune †	71	— 7	30.2	T.
Ulysses †	70	— 1	35.0	0.35
Wa Keeney *[1]	64	—11	22.8	T.
Wakefield *[1]	62	— 4	29.3	0.67
Wallace *a* †	.....	.....	.....	0.03
Wallace *b* *[1]	75	— 8	31.8	0.08
Wamego *[1]	56	— 4	27.5	0.74
Winona *[1]	68	— 6	29.9	0.15
Yates Center †	62[d]	.....	.....	0.65
Kentucky.				
Caddo *†[1]	60	7	36.2	5.15
Canton *†[1]	60	11	40.2	5.06
Carrollton *†[1]	59	8	33.7	3.90
Catlettsburg *†[5]	56	17	36.3	3.66

Meteorological record of voluntary observers, &c.—Continued.

Stations.	Temperature. (Fahrenheit.) Max.	Min.	Mean	Precip'n.
Kentucky—Cont'd.	°	°	°	*Ins.*
Earlington *[1]	64	14	41.4	6.22
Eddyville †	.....	.....	.....	5.04
Edmonton †[1]	66	11	36.2	4.67
Falmouth †	.....	.....	.....	4.65
Frankfort †	.....	.....	.....	3.37
Franklin *†[1]	67	11	40.1	5.97
Greensburg *†[1]	68	11	40.1	4.61
Harrodsburg †[1]	70	6	37.3	3.92
Hendricks †	69	15	42.6	4.65
Lagrange †	60[d]	4[d]	32.6[d]	4.21
Louisa †	70	12	37.9	3.67
Matlock *[1]	64	10	40.7	4.91
Middlesboro †[1]	66	15	40.9	7.74
Mount Sterling †[1]	66	9	35.7	3.89
Paducah *a* †	.....	.....	.....	4.37
Paducah *b* †[1]	66	8	38.9	4.43
Pellville †	62	7	38.7	4.91
Princeton †	62	7	35.7	3.95
Richmond †[1]	54	16	37.5	.....
Robard	.....	.....	.....	3.86
Russellville *†[1]	63	10	38.9	4.99
Shelby City *[1]	64	11	38.0	3.71
Shelbyville †[1]	62	8	36.3	5.41
South Fork †[2]	.....	.....	38.6	4.17
Springfield †	65	10	35.4	2.60
Versailles	.....	.....	.....	4.08
West Point *[1]	61	8	36.5	.....
Wickliffe *†[1]	60	7	36.7	4.55
Williamsburg *a* †	.....	.....	.....	7.34
Williamsburg *b* †[1]	69	11	41.2	6.62
Louisiana.				
Abbeville[1]	81	34	60.1	1.75
Alexandria †	76	32	54.2	5.71
Amite †	80	40	63.3	3.48
Baton Rouge †[1]	78	34	58.0	1.78
Calhoun[1]	76	26	50.5	3.99
Cameron †	80	28	55.8	1.42
Cheneyville †	78	35	58.4	4.54
Clinton †	80	.....	.....	2.08
Coushatta *a* †	.....	.....	.....	1.55
Coushatta *b* †	86	27	57.0	2.14
Covington †	72	34	54.2	.....
Davis	73	25	51.5	4.56
Delhi †	.....	.....	.....	2.76
Donaldsonville †	80	44	62.9	1.34
Emilie †	80	38	60.0	1.84
Farmerville	71[f]	27	48.0	4.72
Franklin †	80	38	61.0	1.48
Girard †	.....	.....	.....	6.11
Grand Coteau[1]	75	36	59.5	2.03
Hammond †	.....	.....	.....	2.30
Homer †	75	29	49.0	1.95
Houma †	82	39	60.4	4.19
Jeanerette	80	36	60.6	3.05
Lafayette †	78	35	60.2	1.74
Lake Charles †[1]	79	25	57.7	1.90
Lawrence †	77	39	61.4	4.30
Liberty Hill	77	26	52.4	2.08
Many †	74	31	54.2	3.74
Maurepas	86	30	59.4	1.16
Melville †	80	33	61.8	3.10
Monroe †	73	29	55.0	3.49
Opelousas †	77	34	59.4	2.36
Paincourtville †	81	36	60.6	1.61
Plain Dealing	76	26	50.8	2.19
Plaquemine	78	34	57.9	2.28
Rayne †	78	37	59.0	1.19
Roseland	80	34	58.6	1.86
Schriever †	79[g]	37[h]	61.3[h]	2.85
Shell Beach	76	32	58.5	1.50
Sugar Ex. Station †[1]	78	40	62.3	4.16
Thibodeaux	.....	.....	.....	2.47
Wallace	83	39	60.6	2.09
West End	.....	.....	.....	3.59
Winnsboro	80	21	53.3	1.70
Maine.				
Bar Harbor	46	— 8	19.4	3.59
Belfast *[6]	45	— 6	19.4	4.84
Calais †	45	—12	18.2	3.22
Cornish *[1]	47	— 8	19.0	7.33
East Machias †	47	—13	17.6	3.87
Easton †	44	—16	9.9	3.20
Fairfield	43	—20	15.6	2.77
Farmington †	59	—26	15.8	3.81
Fort Kent †	41	—32	6.4	0.98
Gardiner [1]	50	—16	18.5	4.79
Houlton †	44	—24	9.9	3.49
Indian Stream †	41	—17	10.6	1.83
Kennebec Arsenal †	51	—15	15.4	3.58
Kents Hill	50	—12	16.1	4.53
Lewiston[1]	55	—17	18.2	5.59
Petit Menan *[1]	40	— 5	22.0	1.85
Presque Isle	45	—22	10.6	.....
West Jonesport *[1]	40	—12	18.1	.....
Maryland.				
Barren Cr'k Sp'gs †[1]	63	12	36.3	4.39
Boettcherville *[1]	58	— 5	31.6	4.40
Cambridge	69	16	38.9	4.80
Cumberland *a* †	58	3	31.8	3.58
Cumberland *b*	57	2	32.8	3.96
Darlington †	58	2	31.0	4.74
Denton †[1]	70	12	36.0	4.38
Easton †	63	11	34.6	3.87
Edgemont	59	4	31.5	.....
Fallston *[1]	59	6	31.3	5.43

Stations.	Temperature. (Fahrenheit.) Max.	Min.	Mean	Precip'n.
Maryland—Cont'd.	°	°	°	*Ins.*
Fenby *[1]	56	4	29.6	4.24
Frederick [1]	58	10	33.1	4.06
Glyndon *[1]	57	7	31.0	4.51
Great Falls *[5]	60	9	34.4	2.76
Jewell[2]	.....	.....	30.2	2.22
Leonardtown †	66	15	36.8	4.60
McDonogh	58	5	33.2	4.14
Mt. St. Marys Col †[1]	61	5	31.0	4.45
New Market *[1]	58	6	31.2	4.11
Oakland *	.....	—13	.....	1.30
Salisbury *[1]	60	17	36.4	.....
Solomons †[1]	65	16	36.4	4.65
Sunnyside[2]	.....	.....	24.4	4.94
Taneytown †	.....	.....	.....	2.60
Westminster *[1]	57	6	30.1	4.30
Woodstock [1]	55*	4	33.2	5.45
Massachusetts.				
Adams *a*	54	— 5	25.2	.....
Amherst[1]	51	— 5	23.9	5.57
Amherst Ex. St'n *a*[1]	49	— 6	22.9	4.81
Amherst Ex. St'n *b*	50	— 4	22.9	5.75
Andover [1]	53	— 4	23.4	6.87
Ashland	.....	.....	.....	8.24
Beverly Farms	52	— 5	24.3	8.55
Blue Hill (sum't)	48	— 3	23.9	6.71
Blue Hill (valley)	51	— 1	25.4	6.32
Boston	.....	.....	.....	7.06
Cambridge *a*	52	— 1	24.9	7.28
Cambridge *b*	50	— 1	24.2	6.43
Chestnut Hill	53	— 2	26.0	8.09
Clinton	.....	.....	.....	4.90
Concord *a* †	52	— 5	22.7	5.48
Dudley [1]	49	— 5	22.4	3.40
Egg Rock, Nahant	47	—11	24.4	.....
Fall River *a* *[1]	48	3	27.0	7.52
Fiskdale	.....	.....	.....	4.60
Fitchburg *a* *[1]	48	— 2	22.6	6.89
Fitchburg *b*	50	— 3	22.5	6.23
Framingham	50	— 4	24.4	8.15
Gilbertville	50	—10	23.7	7.50
Great Barrington[1]	52	— 5	22.2	.....
Groton *a*	50	— 6	21.7	6.21
Groton *b*	50	— 1	24.1	.....
Hingham	.....	— 3	.....	6.76
Hyannis *[1]	46	0	29.6	5.32
Kendall Green	44	0	24.4	7.92
Lake Cochituate	57	— 5	25.0	7.26
Lawrence	52	— 5	23.8	5.24
Leeds	50	— 8	22.0	0.35
Leicester	46	— 6	22.1	5.52
Leominster *[4]	50	— 2	20.6	6.48
Long Plain *[4]	48	0	24.7	7.91
Lowell *a*	51	— 6	23.0	7.70
Lowell *b*	55	— 8	23.0	.....
Lowell *c*	50	— 5	23.2	.....
Ludlow Center	48	—11	21.6	6.35
Lynn *a*	49	— 1	25.1	6.40
Lynn *b* *[1]	56	1	27.8	.....
Mansfield *[1]	53	— 4	25.9	7.76
Medford	.....	.....	.....	5.63
Middleboro	52	0	26.7	6.51
Milton *[1]	46	0	26.8	5.32
Monroe	48	— 9	19.5	7.95
Monson[1]	52	— 4	23.6	7.45
Mount Nonotuck	.....	.....	.....	6.51
Mystic Lake	.....	.....	.....	7.50
Mystic Station	.....	.....	.....	7.71
New Bedford *a* *[1]	47	0	26.6	6.72
New Bedford *b*	51	0	28.1	8.15
Newburyport *b*	.....	.....	.....	5.50
North Billerica [1]	54	— 1	26.3	7.15
Plymouth *[1]	55	4	29.7	6.66
Provincetown	46	7	27.8	5.37
Randolph	.....	.....	.....	3.47
Roberts Dam	.....	.....	.....	6.19
Roxbury	51	1	26.6	6.94
Royalston *[1]	48	0	24.7	3.63
Salem *b*	.....	.....	.....	5.77
Savoy	44	—10	16.0	.....
Somerset *[1]	52	0	26.3	7.17
South Dennis [1]	43	3	27.7	7.25
Springfield Arm'ry	50	— 4	23.5	5.94
Taunton *a* [1]	56	— 2	27.6	6.29
Taunton *b*	53	0	27.3	7.07
Taunton *c*	54	0	26.9	9.91
Taunton *d* [1]	50	— 2	26.7	8.67
Wakefield	51	— 3	24.7	8.39
Waltham	.....	.....	.....	7.65
Wayland	51	— 5	22.4	5.67
Webster	.....	.....	.....	6.33
Wellesley	56[c]	— 3[c]	23.8[c]	5.65
Westboro †	52	— 2	26.2	6.98
Whately *[1]	56	0	24.6	.....
Williamstown [1]	47	— 7	21.6	3.72
Worcester *a*	48	— 2	23.4	6.64
Worcester *b*	50	— 2	23.6	6.91
Michigan.				
Adrian	42	— 7	21.8	3.99
Albion [1]	43	— 3	24.4	3.26
Allegan	43	— 4	21.5	2.85
Alma	38[e]	—14[e]	16.4[e]	1.41
Ann Arbor [1]	41	— 8	21.2	4.25
Arbela[2]	.....	.....	15.6	3.66
Ball Mountain	40	— 9	18.5	2.99
Bear Lake	41	—18	16.2	1.84

Meteorological record of voluntary observers, &c.—Continued.

Stations.	Temperature. (Fahrenheit.) Max.	Min.	Mean	Precip'n.
Michigan—Cont'd.	°	°	°	*Ins.*
Bellaire	46	−26	11.8	1.84
Benton Harbor	47	− 1	24.6	2.93
Berlin *[1]	39	−12	17.2	3.65
Berrien Springs *a*[1]	42	− 4	24.8	2.81
Berrien Springs *b*				1.10
Birch Run	42	−14	17.5	3.25
Birmingham[1]	43	− 3	21.7	3.14
Boon[1]	40	−23	12.7	2.82
Bronson	44	−10	20.2	2.59
Brown City	39	− 9	17.2	2.55
Caldwell	37	−18	14.0	3.05
Calumet	42	−20	7.8	1.12
Charlevoix	39	− 9	14.0	1.00
Clinton	43	− 7	21.6	3.83
Crystal Falls	41	−25	11.0	1.10
East Tawas[1]	41	−13	19.0	1.55
Evart	39°	−27*	12.6°	1.50
Fairview	40	− 7	19.7	3.99
Fitchburg	39	−10	20.2	4.21
Flint	45	− 9	18.3	2.07
Gaylord	38	−17	12.2	2.16
Glenwood	41	− 8	20.6	2.03
Grape	46	− 6	24.2	2.55
Grayling	38	−20	11.2	2.30
Hanover	47	− 6	25.0	3.59
Harbor Springs[1]	47	−23	12.6	3.20
Harrison	39	−18	13.4	2.15
Harrisville[1]	38	−21	11.8	3.22
Hart	40	−10	20.4	3.70
Hastings	41	−10	20.4	2.95
Hayes	39	−12	17.1	2.50
Hillsdale *[1]	40	−11	20.8	1.20
Howell	41	−11	19.2	3.49
Ivan	41	−17	13.8	1.91
Jeddo[1]	37	− 9	17.8	1.84
Kalamazoo	44	− 2	21.3	2.35
Lake City *[2]	38[b]	−17	14.0°	1.80
Lansing[1]	40	− 7	20.5	2.31
Lewiston	39	−15	14.3	2.01
Lyons	46	− 5	23.7	1.81
McMillan	35	−24	9.8	1.40
Madison	42	− 7	21.5	3.55
Marshall[1]	40	− 9	21.3	3.93
Mayville	38	−11	17.4	1.77
Montague	48[4]	− 1	21.4	.....
Mottville	46	− 6	21.0	2.39
Noble	40	4	20.8	3.01
North Marshall	40	−12	18.7	3.76
Olivet	39	−10	18.8	1.32
Ovid	38	− 9	18.2	3.51
Paris	38	−25	12.4	2.45
Parkville				3.46
Rawsonville *[1]	42	− 6	22.2	3.60
Rockland[1]	50	−25	11.4	.....
Romeo	39	− 9	20.0	.....
Saint Ignace	39	−22	10.4	2.00
Sand Beach	41	−10	17.6	3.90
Stockbridge				4.15
Thornville	40	− 8	19.7	2.16
Vandalia	41	− 5	22.2	3.37
Washington	45	− 8	20.4	3.06
Williamston *[1]	46	− 8	22.9	3.80
Ypsilanti	43	− 8	21.6	4.20
Minnesota.				
Ada †	30	−43	−4.8	1.01
Albert Lea †[1]	36	−27	9.8	1.52
Alexandria *a* †				1.40
Alexandria *b*[1]	34	−40	2.7	0.70
Alma City †[1]	37	−27	8.7	1.74
Bingham Lake †	36	−30	9.6	0.60
Bird Island	38	−31	7.0	1.35
Blooming Prairie *[1]	38	−30	7.8	2.53
Caledonia †	40	−26	10.8	2.27
Cambridge †	40	−35	7.0	1.05
Camden †[1]	40	−30	9.7	0.53
Clear Lake †	35	−33	0.6	1.17
Collegeville	40	−32	9.2	0.57
Crookston †[5]	36*	−45	−2.2	.....
Easton[1]	40	−27	12.2	1.80
Farmington[1]	38	−30	8.8	2.24
Fergus Falls †[1]	35	−39	3.2	0.91
Fort Ripley †				0.97
Grand Meadow *[1]	40	−26	6.6	2.50
Granite Falls	39	−33	7.0	0.82
Hinckley *† [1]	34	−36	6.7	1.36
Holland †[1]	36	−30	7.4	0.43
Kinbrae †	38	−28	6.6	0.40
L Winnibigoshish *[1]	39	−40	1.9	1.25
Leech Lake [1]	42	−34[b]	4.4[b]	1.01
Long Prairie *† [4]		−42	1.8	.....
Maple Plain	37	−29	7.7	1.95
Minneapolis †	38	−28	9.4	1.80
Minnesota City *[1]	42	−26	14.1	1.20
Montevideo †	37	−35	6.6	1.11
Morris[1]	34	−36	3.6	0.75
Northfield †[1]	37	−39	10.1	.....
Ortonville †				1.10
Park Rapids †[1]	37	−41	0.5	1.15
Pine River *[1]	40	−43	3.6	0.62
Pokegama Falls[1]	40*	−39	0.0	1.39
Redwood Falls †				1.55
Rochester *[1]	39	−27	11.1	1.78
Rolling Green †[1]	35	−29	7.4	1.67
Saint Charles †[1]	37	−30	10.7	2.75
Saint Cloud *[1]	37	−30	8.8	.....
Minnesota—Cont'd.				
Saint Oloff[1]	34	−36	4.4	0.86
Sandy Lake Dam[1]	35*	−41	6.6	1.00
Sheldon [3]			10.5	1.60
Wabasha *[5]	38	−24	12.5	3.08
Winona[1]	42	−27	16.2	2.20
Mississippi.				
Aberdeen †				7.05
Agricult'ral Col'ge	74	23	50.6	5.11
Batesville †	79	19	46.6	4.95
Briers	76	30	54.4	4.32
Brookhaven †	76	28	50.7	6.87
Canton †	72	28	53.8	3.98
Columbus *a* †				5.18
Corinth †				5.02
Crystal Springs †	77	28	54.8	5.05
Edwards †	73	28	54.3	4.33
Enterprise †	77	29	53.6	5.25
Fayette †	80	29	57.3	4.79
Greenville *a*	71	27	49.0	5.27
Greenville *b* †				5.27
Hattiesburg *† [1]	77	34	59.7	4.41
Kosciusko †	78	29	53.5	3.70
Lake †	78	28	52.5	7.71
Logtown †	77	38	60.2	3.17
Louisville †	77	23	52.2	4.50
Macon †				3.65
Moss Point †	74	36	59.0	5.40
Natchez †	78	32	56.6	3.88
Okolona †	71	18	48.0	4.54
Palo Alto † [1]	75	23	49.9	4.20
Pontotoc † [1]	72	18	47.8	4.11
Port Gibson †	75	27	53.9	3.16
Ship Island †	72	39	60.6	3.37
University †	75	16	47.6	3.22
Vaiden † [1]	80	25	51.2	4.89
Washington †	74	31	55.9	4.30
Water Valley *[1]	73	19	47.8	5.74
Waynesboro *a* †	80	28	55.0	.....
Yazoo City †				4.26
Missouri.				
Akron				0.92
Annapolis		6		2.99
Appleton City †	60	0	31.1	1.65
Arlington †				0.93
Arthur *[3]		3	27.2	0.94
Bethany	48	−12	23.2	1.60
Big Piney				0.95
Boonville †				1.84
Brunswick	54	− 8	27.2	1.40
Bryant				1.05
Cabool				2.60
Canton				2.17
Cape Girardeau †				3.27
Carrollton †	57	− 7	25.4	2.96
Carthage †				1.47
Conception [1]	55	−13	23.8	2.77
Dadeville †				1.65
Darksville †	50	−10	20.8	1.96
East Lynne *[3]		− 6	26.0	1.22
Eight Mile *[1]	57	− 7	28.2	1.22
Edge Hill *[3]		2	30.9	3.23
Eldon *[1]	56	0	28.0	2.20
Edina	51	3	23.8	1.85
Emma *[3]		− 4	29.3	0.80
Farmersville				1.63
Fayette	58	− 8	28.2	1.73
Fox Creek *[1]	56	−10	30.2	2.50
Fulton				1.35
Gainesville	62	4	34.7	3.64
Gallatin *† [1]	55	−11	24.9	2.12
Gayoso *[3]		12	37.6	5.36
Glasgow [1]	58	− 9	26.7	1.07
Glensted				1.00
Gordonville *† [3]		9	33.7	3.14
Gorin *[3]		− 7	22.1	1.38
Grove Dale	61	− 7	31.8	1.56
Harrisonville †	61	− 0	27.6	0.94
Hastain	54	− 5	31.2	1.82
Hermann †				3.51
Houston	61	2	36.3	1.33
Irena				1.45
Ironton *[1]	60	2	32.8	3.45
Jefferson City †	62	0	30.0	0.20
Kidder	52	−12°	24.0	0.87
Lamar †	60	− 2	32.0	0.89
Lamonte †				1.31
Langdon † [1b]	55	−11	17.8	0.90
Lebanon	57	− 2	31.8	2.34
Lexington †	58	− 8	28.1	0.98
Liberty	57	− 5	27.0	1.79
Linn Creek	62	− 2	31.4	1.78
Louisiana Bridge †				1.60
McCune *[1]	55	− 7	26.0	3.44
Malden				1.05
Mansfield				2.17
Marble Hill	61	4	33.8	4.54
Marshall † [1]	58	− 8	25.8	1.23
Mexico †	57	− 6	26.2	2.04
Miami *[1]	56	− 6	27.8	1.50
Mine La Motte	65	2	33.9	2.94
Mound City *† [1]	55	−11	24.1	1.33
Mount Vernon				2.28
Neosho	64	1	32.0	2.27
New Hartford				2.84
New Haven *[1]	56	0	29.0	1.68

Meteorological record of voluntary observers, &c.—Continued.

Stations.	Temperature. (Fahrenheit.) Max.	Min.	Mean	Precip'n.
Missouri—Cont'd.	°	°	°	*Ins.*
New Palestine				0.60
Oakfield	56	− 3	30.8	2.26
Oak Ridge *[4]	62	3	32.1	2.75
Olden	64	4	35.2	3.97
Oregon *a* [1]	58	−12	24.0	1.37
Oregon *b* † [1]	53	− 8	24.1	1.07
Oto				1.81
Palmyra				2.85
Paris	50	− 7	27.2	2.90
Phillipsburg *[1]	58	− 4	31.5	1.40
Pickering *[3]		−16	19.4	1.55
Platte River *[3]	54	− 4	24.3	1.46
Poplar Bluff	64	7	36.5	5.08
Princeton *[1]	48	−11	22.6	1.86
Rea *[1 d]	42	−10	20.4	0.80
Rolla †				1.75
Saint Charles *b*	55	− 2	30.1	3.37
Saint Joseph †				1.53
Saint Louis *a*	57	− 1	29.5	2.65
Sedalia	59	−10	27.2	1.63
Shelbina				4.50
Stanberry *[1]	51	−10	23.4	1.48
Steelville *[1]	58	2	31.8	1.56
Steffenville				2.55
Stellada †	57	− 9	28.8	0.87
Sublett *[1]	49	−13	22.2	3.15
Vancleve				0.30
Vermont *† [1]	55	− 6	27.0	2.14
Virgil City				0.96
Warrenton	57	− 5	30.2	3.50
Wellsville *[1]	55	− 5	27.5	0.70
West Plains				1.86
Wheatland				1.03
Whiteside	51	− 5	26.2	1.30
Montana.				
Boulder *† [1]	43	−36	16.4	0.20
Bozeman †	44	−42	14.8	0.37
Camp Poplar River	45	−54	0.1	0.70
Choteau †	56	−42	12.8	0.60
Corbin [1]	47	−43	15.5	.....
Deer Lodge City †	48	− 8	23.4	0.30
Elk Park †	37	−33	7.6	0.40
Fort Keogh	50	−42	5.0	0.21
Fort Logan †	38	−46	7.4	0.15
Fort Missoula	45	−27	19.2	1.98
Glendive †	43	−47	6.9	0.30
Great Falls †	57	−42	19.8	0.39
Hogan	45	−43	11.4	0.30
Horr †	43	−19	21.8	0.21
Martinsdale † [1]	45	−52	14.5	0.55
Powder River †	49	−49	10.8	0.48
Virginia City †	40	−15	19.5	0.53
Nebraska.				
Agee *[1]	56	−18	19.6	0.91
Albion	56	−22	18.7	.....
Ansley † [1]	60	−28	20.8	0.80
Arborville *[1]	56	−16	20.8	1.30
Arcadia				0.50
Ashland *† [1]	57	−14	19.5	0.37
Ashton *[3]	57	−20	20.7	0.42
Auburn *b* *[1]	56	−11	23.7	1.15
Bassett *[1]	58	−28	19.3	0.60
Beatrice † [2]	58		22.2	1.87
Beaver City	60	−14	26.8	0.55
Belvidere *[1]	60	−17	21.4	0.52
Burwell *[1]	56	−20	19.3	0.91
Callaway †	59	−22	22.6	0.29
Cornlea *	54			0.93
Creighton *† [1]	49	−22	16.3	0.55
Crete [1]	58	−16	22.2	1.22
Culbertson *a* †				0.61
David City *† [3]	54	−16	15.7	1.40
Dunning *[1]	52	−22	21.2	0.45
Ericson *† [1]	52	−21	18.5	0.91
Fairbury				0.70
Fort Robinson	57	−21	23.2	0.26
Fort Sidney	60	−15	25.4	0.40
Franklin	59	−14	24.4	0.40
Fremont *[1]	52	−18	19.1	0.95
Geneva *		1		0.27
Genoa † [1]	55	−22	19.8	1.03
Gering † [1]	59	−16	24.8°	0.45
Haigler *[1]	55	0	27.2	0.35
Hartington †	48	−25	14.0	1.50
Harvard *[1]	58	−16	22.1	1.05
Hay Springs †	53	−27	19.7	0.85
Hebron †	63	−14	25.3	0.30
Holdrege *[3]		−16	19.0	0.53
Imperial *[5]	60	−14	27.4	0.60
Indianola *[5]	68	−22	27.8	0.75
Kennedy *† [1]	54	−19	21.0	1.40
Kimball †	57	−13	26.8	0.65
Lexington †	67	−21	27.6	1.40
Lincoln [1]	58	−14	21.3	0.83
Madrid *[5]	55	−16	24.2	1.00
Marquette *[3]	57	−19		1.58
Minden [1]	56	−16	22.2	2.14
Mullen *† [1]	60	−17	20.8	1.10
Nesbit *† [3]		−20	13.6	T.
Norfolk † [1]	56	−20	16.7	1.12
North Loup † [1]	56*	−25	21.4	0.66
Oakdale †	54	−24	16.6	0.89
O'Neill *[1]	60	−22	16.6	1.20
Ough *b* †				0.90
Paddock *[1]	52	−26	16.1	0.76
Nebraska—Cont'd.				
Palmer *[1]	54	−24	16.8	0.70
Plattsmouth †				1.37
Ravenna	59	−20	21.4	1.27
Red Cloud				0.15
Santee Agency †	51	−21	17.0	0.90
Seward [3]	60	−14	24.3	0.82
Springview	54	−23	17.3	0.91
Stanton [2]			15.4	1.60
State Farm [1]	59	−18	21.9	0.64
Superior *[1]	60	−10	24.9	0.00
Syracuse *[1]	50	−13	21.1	1.39
Table Rock *† [1]	55	−14	23.4	1.68
Tekamah	51	−20	17.4	2.25
Thedford *[1]	65	−24	18.4	1.05
Turlington *[1]	52	−17	22.7	1.40
Wallace *[1]	54	−18	22.2	0.85
Weeping Water *[1]	52	−20	18.4	1.21
West Point †	45	−26	14.8	1.60
Whitman *[1]	50	−18	20.7	T.
Wilcox *a*				0.78
York *[1]	50	−16	20.9	.....
Nevada.				
Austin	48	2	26.8	1.39
Battle Mountain *[1]	50	− 6	31.3	0.10
Belleville *[3]	56		29.6	1.00
Belmont	46	− 5	24.8	1.63
Beowawe *[1]	46	2	26.8	0.40
Browns *[3]	50	6	35.4	0.88
Candelaria	52	12	32.1	0.75
Carlin *[3]	40	−20	20.0	0.60
Carson City [1]	59	11	33.3	2.42
Cranes Ranch				0.81
Downeyville	69	14	37.3	0.59
Elko *[3]	40	−10	22.0	2.20
Elko (near) *[1]	46	−30	19.9	0.43
Ely	48	−10	26.9	0.60
Fenelon *[3]	45	−10	20.4	0.40
Genoa	56	12	32.2	1.60
Golconda *[1]	48	−12	26.8	0.95
Halleck *[1]	46	−32	16.6	1.40
Hawthorne *a* [3]	55	23	36.7	0.70
Hawthorne *b*	58	12	35.8	0.58
Hot Springs *[1]	55	7	30.2	0.00
Humboldt *[3]	45	− 5	31.6	0.05
Lewers Ranch	57	10	31.8	3.67
Lovelock *[3]	55	0	35.7	.....
McDermitt	59	−35	25.3	0.76
Mill City *[1]	46	−15	30.7	0.41
Monitors Ranch	49	− 5	27.4	0.53
Palisade *[1]	45	−10	25.4	0.95
Palmetto	55	4	31.6	2.40
Pioche	60	4	33.9	1.19
Reno *[3]	52	13	33.0	1.55
Reno State Univ'sy.	56	9	31.9	1.10
Saint Clair	58	8	32.8	0.90
South Camp †	50	8	27.9	3.06
Stoñel	54	−40	16.2	5.73
Tecoma *[3]	47	−12	20.9	0.50
Toano *[3]	35	−10	13.3	0.20
Tuscarora †	45	7	26.3	3.05
Tybo	57	7	32.4	1.31
Verdi *[3]	50	3	29.2	2.90
Virginia City	56	10	32.2	4.74
Wabuska *[1]	54	18	35.3	0.60
Wadsworth *[3]	58	10	33.4	0.00
Wells *[3]	42	−10	20.5	1.72
Winnemucca *[3]	44	−18	27.0	0.95
New Hampshire.				
Antrim				8.00
Belmont				5.65
Berlin	46	−21	12.0	.....
Berlin Mills	47	−21	13.2	4.13
Bethlehem	45	−15	13.7	2.45
Brookline *[1]	50	− 6	23.9	5.71
Concord *a*	50	−12	19.6	5.48
Dublin	45	−10	18.7	4.04
Durham	52	− 5	22.6	3.94
East Canterbury	47	−10	19.3	4.07
Grafton *[1]	52	−20	18.1	6.65
Groveton *[1]	42	−28	13.0	.....
Hanover *a* [1]	48	−15	17.6	6.43
Keene	52	−10	20.7	7.02
Lakeport				7.06
Lancaster	48	−17	15.9	2.38
Littleton [1]	45	−23	14.3	3.24
Manchester [1]	50	− 6	21.8	5.96
Mine Falls				6.05
Monroe	48	− 9	19.5	7.95
Nashua	52	− 9	22.7	7.23
Newton	51	− 7	22.0	4.63
North Conway	54	−20	16.6	7.51
Peterboro	47	− 9	19.4	6.43
Plymouth [1]	49	−22	15.2	5.73
Sanbornton	48	− 9	16.8	3.42
Stratford	46	−21	16.4	3.21
Tilton [1]	50	− 6	20.2	3.96
Walpole	48	−13	18.8	6.87
West Milan	45	−23	12.3	4.78
Wiers Bridge				6.07
Wolfboro				3.19
New Jersey.				
Allaire	57	5	30.6	.....
Asbury Park [1]	56	4	31.4	5.09
Barnegat	60	4	31.3	3.14
Bayonne	55	6	29.3	6.81

Meteorological record of voluntary observers, &c.—Continued.

Stations.	Temperature. (Fahrenheit.) Max.	Min.	Mean	Precip'n.
New Jersey—Cont'd.	°	°	°	*Ins.*
Belleville	.....	.....	.....	7.90
Belvidere	49	3	26.3	7.54
Beverly †[1]	55	5	30.2	6.23
Billingsport L H *[1]	56	8	30.8	4.33
Boonton	.....	.....	.....	6.38
Bridgeton *a*[1]	61	12	34.6	4.48
Butler	...[g]	.....	.....	8.78
Camden	55	10	31.3	5.21
Cape May	63	9	34.8	3.99
Deckertown	50	— 1	25.5	6.66
Dover	54	0	25.6	6.93
Egg Harbor City †[1]	61	6	32.6	4.91
Elizabeth †[1]	54	3	28.1	6.74
Franklinville	58	6	32.2	4.89
Freehold [1]	56	5	31.4	7.16
Friesburg	.....	.....	.....	4.85
Gillette	51	4	26.7	5.39
Hammonton	.....	.....	.....	5.55
Hanover	51	9°	28.7°	4.54°
Highland Park †	54	5	28.6	5.73
Hightstown [1]	54	6	29.2	5.53
Imlaystown	54	3	31.2	5.45
Junction *	.....	5	.....	6.79
Lambertville	53	8	28.6	5.34
Locktown	51	4	28.0	5.48
Moorestown [1]	55	5	30.4	6.30
Newark *a*	52	5	28.3	6.20
Newark *b* † [1]	54	4	29.8	4.98
New Brunswick *a*.	55	4	29.0	5.73
New Brunswick *b*.	52	6	27.6	6.01
Newton	52	— 1	24.4	7.77
Ocean City	56	8	33.4	4.39
Oceanic	57	8	32.0	5.99
Paterson	54	5	30.6	7.51
Pensauken	.....	.....	.....	4.43
Plainfield	52	6	29.6	6.37
Rancocas	54	5	28.5	6.07
Readington *[8]	56	8	32.4	.....
River Vale [1]	58	2	30.5	5.88
Salem	58	6	30.4	4.19
Somerville	55	— 1	28.6	6.17
South Orange [1]	52	4	28.0	8.90
Tenafly [1]	58	1	27.9	5.82
Toms River	58	2	31.6	4.63
Trenton	51	6	30.4	5.52
Vineland	62	9	35.4	4.34
Whiting	58	7	33.4	5.38
Woodbine	63	8	33.0	3.98
New Mexico.				
Albert †	72	11	39.7	0.20
Albuquerque †	62	17	40.8	0.07
Bloomfield †	56	4	33.2	1.25
Chama †	54	— 5	28.1	4.32
Deming *[8]	74	24	55.6	0.59
East Las Vegas †	59	11	35.4	1.16
Estalina Springs †	60	13	36.2	0.68
Folsom †	66	4	31.9	0.40
Fort Bayard	66	17	42.2	0.14
Fort Wingate	60	9	34.6	0.63
Gallinas Spring †	65	13	37.0	0.81
Halls Peak †	59	6	32.0	0.88
Hillsboro †	71	11	46.0	1.72
La Luz †	69*	21	.....	0.30
Lordsburg *[8]	59	25	44.5	0.90
Los Lunas †	62	17	39.6	T.
Monero †	49	— 3	27.2	4.58
Olio †	56	13	36.9	0.85
Roswell †	82	10	47.2	0.74
Socorro †	74	19	44.2	0.22
Springer †	68	8	33.8	0.05
New York.				
Adams Center	.....	.....	.....	3.37
Addison [1]	48	— 8	23.8	2.27
Akron	.....	.....	.....	4.38
Albion *[1]	45	0	22.1	4.25
Alfred Center	48	— 8	20.0	4.15
Ampersand † [1]	44	—20	14.0	2.75
Angelica † [1]	47	—10	20.8	4.37
Arcade [1]	44	— 9	18.5	4.60
Arkwright	42	— 7	21.9	.....
Atlanta	.....	.....	.....	0.86
Avon	.....	.....	.....	2.86
Baldwinsville [1]	44	— 5	21.3	5.78
Bedford	.....	.....	.....	7.27
Binghamton † [1]	48	—10	21.4	4.16
Boyds Corners *[1]	50	— 5	26.8	8.05
Brentwood [1]	56	4	28.6	2.70
Brockport	48	0	22.8	3.52
Brookfield [1]	41	— 8	19.4	3.29
Canton † [1]	44	—16	15.3	1.94
Carmel [1]	53	— 3	24.6	7.59
Chenango Forks	.....	.....	.....	3.80
Cherry Creek	.....	.....	.....	9.22
Constableville †	42	—19	16.4	3.39
Cooperstown [1]	47	—10	19.4	4.99
Cortland	42	— 3	20.4	2.90
De Kalb Junction	.....	.....	.....	2.21
Demster	.....	.....	.....	2.49
Deposit	.....	.....	.....	3.70
Dunkirk	47	— 3	22.2	3.99
Easton	.....	.....	.....	4.56
Eden Center	53	—10	24.0	9.59
Ellis	.....	.....	.....	1.75
Elmira * † [1]	46	— 4	25.5	1.61
Factoryville † [1]	52	— 8	23.3	2.73

Stations.	Temperature. (Fahrenheit.) Max.	Min.	Mean	Precip'n.
New York—Cont'd.	°	°	°	*Ins.*
Fleming [1]	43	0	21.6	1.30
Fort Niagara	46	4	25.0	2.24
Friendship [1]	47	— 7	21.6	4.96
Galway	.....	.....	.....	6.22
Geneva † [1]	45	0	23.0	2.98
Glens Falls [1]	48	—17	18.1	5.50
Gloversville [1]	47	—13	18.0	6.81
Honeymead Brook [1]	52	— 6	22.3	7.43
Humphrey † [1]	47	— 8	22.0	5.52
Italy Hill	42	— 5	19.3	.....
Ithaca [1]	49	— 1	22.6	2.93
Jamestown * † [1]	46	— 4	25.0	.....
Kings Station	.....	.....	.....	6.85
Lebanon Springs	46	—10	20.8	6.12
Le Roy	44	— 7	19.6	6.86
Lockport	44	— 2	22.2	3.86
Lowville	44	—17	16.7	4.08
Lyndonville	.....	.....	.....	2.23
Lyons [1]	45	2	23.5	3.18
Lyon Mountain	42	—13	15.5	.....
Madison Barracks	43	—15	17.5	2.35
Malone	44	—15	13.0	2.52
Middletown [1]	46	— 3	23.4	6.60
Mount Morris	48	— 9	22.3	.....
Newark Valley	.....	.....	.....	2.86
Newfield Summit	43	— 6	19.7	.....
New Lisbon	47	— 6	19.5	4.86
N'th Hammond * † [1]	44	—10	15.9	1.83
Number Four †	39	—21	14.2	2.44
Oxford	42	— 6	19.2	4.47
Palermo † [1]	41	— 9	19.4	3.99
Perry City [1]	42	— 2	20.8	2.80
Phœnix	.....	.....	.....	3.75
Plattsburg B'ks	46	—16	13.8	1.54
Port Jervis	50	— 1	23.4	5.54
Potsdam [1]	43	—15	13.0	2.99
Poughkeepsie	57	— 7	23.8	6.71
Quaker Street	50	—10	18.5	4.90
Rome	42	— 9	16.7	7.04
Romulus	45	0	22.6	2.49
Rondout †	52	— 1	24.9	8.71
Setauket † [1]	49	7	28.4	7.11
South Canisteo [1]	47	— 7	21.4	3.83
Southeast Res'voir	.....	.....	.....	7.86
South Kortright †	47	— 8	21.6	4.22
Turin	42	—13	15.7	6.33
Utica	43	—10	19.3	7.79
Victor	47	— 3	21.0	.....
Wappingers Falls	.....	.....	.....	7.05
Watertown	42	—10	19.1	3.39
Watkins [1]	50	— 4	21.9	0.92
Wedgwood [1]	47	— 8	19.8	0.49
West Chazy	.....	.....	.....	2.44
West Point † [1]	56	— 2	26.6	7.29
Willets Point	50	4	28.6	7.10
North Carolina.				
Asheville †	70	18	41.4	4.74
Auburn	.....	.....	.....	4.98
Bailey	.....	.....	.....	7.89
Bakersville †	72	14	40.8	4.16
Blowing Rock †	63	18	38.2	4.44
Bryson City †	.....	.....	.....	6.99
Chapel Hill †	72	21	42.2	5.41
Columbus	62	22	41.4	6.98
Currituck Inlet †	.....	.....	.....	1.85
Douglas	66	15	38.7	8.90
Experiment'l Farm	70	22	44.5	5.84
Fayetteville †	.....	.....	.....	4.60
Flat Rock	66	18	42.9	7.00
Highlands * [1]	60	17	39.0	11.37
Horse Cove † [1]	67	24	42.2	9.18
Lenoir * [1]	65	22	41.9	5.20
Lewiston	.....	.....	.....	2.85
Lillington †	.....	.....	.....	5.60
Littleton †	71	18	41.4	5.99
Louisburg † [1]	68	21	43.8	5.32
Lynn * † [2]	72	.....	43.4	7.96
Marion	72	20	43.8	7.37
May	.....	.....	.....	6.04
Mocksville * [6]	71	24	43.5	.....
Morganton * † [1]	72	19	43.4	.....
Mount Airy †	65	15	40.3	5.06
Mount Holly †	.....	.....	.....	6.49
Mount Pleasant [1]	70	23	43.5	7.18
Murphy †	.....	.....	.....	7.14
Newbern †	71	21	45.7	3.25
Oak Ridge †	66	18	42.0	7.35
Pittsboro	69	18	41.0	6.16
Raleigh * † [1]	70	21	46.4	5.40
Rockingham †	79	28	51.8	5.61
Roxboro †	67	16	41.4	7.12
Salisbury [1]	67	24	42.3	7.78
Saxon †	66	13	40.6	7.10
Shelby	64	24	42.2	6.34
Smithfield	75	22	45.5	4.14
Soapstone M't †	73	15	42.2	6.03
Southern Pines †	72	22	43.2	7.10
Tarboro	76	21	45.8	3.10
Warrenton	.....	.....	.....	5.34
Weldon †	73	21	43.8	4.54
Willeyton	74	18	44.6	2.68
North Dakota.				
Ashley †	38	—46	3.0	T.
Bottineau †	25	—49	—6.4	T.
Churchs Ferry †	26	—43	—4.3	0.47

Meteorological record of voluntary observers, &c.—Continued.

Stations.	Temperature. (Fahrenheit.) Max.	Min.	Mean	Precip'n.
N. Dakota—Cont'd.	°	°	°	*Ins.*
Dickinson †	42	—43	5.2	T.
Ellendale †	38	—41	5.7	0.44
Fargo †	42	—41	—1.4	0.11
Forman †	45	—53	4.0	1.03
Fort Stevenson †	37	—43	1.9	0.68
Fort Yates † [1]	41*	—35	7.8	0.18
Gallatin * †	32	—52	.....	0.42
Grafton †	31	—44	—4.5	1.15
Grand Forks * † [1]	26	—44	—3.1	1.07
Grand Rapids † [1]	36	—44	2.7	1.00
Jamestown †	32	—40	—0.4	0.32
Kelso †	31	—44	—2.6	0.45
Lakota †	29	—50	—3.2	1.61
Medora †	52	—47	10.8	T.
Mayville †	34	.....	.....	1.70
Milton †	30	—48	—5.4	1.10
Minto †	31	—43	—3.3	0.50
Napoleon † [1]	34	—44	2.1	0.16
Power † [1]	40	—48	0.6	0.25
Reynolds	30	—45	—5.9	.....
Saint Johns †	.....	.....	.....	1.20
Sykeston †	38	—47	1.0	T.
Wahpeton †	38	—44	1.4	0.45
Wild Rice † [2]	.....	.....	—2.3	1.21
Willow City †	33	—54	—4.4	0.70
Woodbridge †	29	—50	—7.2	0.87
Yule †	45	—47	7.8	T.
Ohio.				
Akron [1]	49	— 1	27.4	5.79
Annapolis	53	5	26.9	6.60
Ashland * [1]	48	— 6	26.6	6.10
Athens [1]	61	5	33.0	5.31
Auburn	49	0	26.1	3.98
Bangorville [1]	51	— 8	26.9	5.89
Bellevue * [1]	48	— 4	25.0	3.23
Bement [1]	48	— 2	23.5	5.32
Benton Ridge	51	— 3	28.8	2.72
Bethany	50	9	31.3	5.55
Big Prairie * [8]	46	— 7	24.2	4.40
Bissells	48	— 3	25.7	3.87
Bloomingburg	54	6	29.9	5.07
Bloom Center	60	1	31.6	4.55
Caledonia †	.....	.....	.....	6.00
Cambridge	55	1	30.7	5.92
Campbellstown * [1]	48	5	29.2	5.32
Camp Dennison [1]	59	6	33.6	4.09
Canton † [1]	50	— 3	28.4	6.20
Cardington	.....	.....	.....	4.62
Carrollton	52	— 4	29.5	6.99
Cedarville	.....	.....	.....	6.58
Celina [1]	56	3	30.4	4.82
Cherry Fork	62	6	35.0	5.61
Chicago	.....	.....	.....	4.91
Circleville †	.....	.....	.....	4.79
Clarksville [1]	56	7	31.4	5.65
Cleveland [1]	52	0	27.0	4.16
Coalton	61	8	35.5	4.38
Colebrook	.....	.....	.....	3.71
Dayton [1]	54	5	32.3	4.87
Demos	57	— 1	30.3	6.39
Ellsworth	.....	.....	.....	3.18
Elyria	48	0	25.9	3.06
Findlay [1]	47	— 3	26.2	5.19
Fostoria [1]	47	— 3	26.2	4.99
Frankfort	56	10	34.7	5.25
Garrettsville [1]	48	—12	24.6	6.11
Georgetown [1]	58	9	34.2	5.15
Granville [1]	52	1	29.9	7.00
Gratiot	53	2	30.4	6.38
Greenfield [8]	55	6	34.0	2.80
Green Hill	51	—13	25.4	6.15
Greenville [1]	48	3	28.4	5.42
Hackney	58	3	34.1	6.19
Hanging Rock	60	11	36.2	3.88
Harbor [1]	49	0	25.2	4.60
Hillhouse	49	— 4	25.1	4.28
Hillsboro	58	7	34.1	5.66
Jacksonboro * [1]	54	6	30.2	4.90
Kenton †	52	— 2	28.1	5.90
Killbuck	.....	.....	.....	5.97
Leipsic	54	— 6	29.8	3.49
Levering	.....	.....	.....	6.43
Logan [1]	60	5	34.0	7.20
Lordstown [1]	49	— 8	25.2	4.87
Lowell	.....	.....	.....	5.01
McArthur	55	8	35.5	4.79
McConnelsville [1]	59	4	33.3	4.96
McLuney	58	4	32.3	5.84
Mansfield †	.....	.....	.....	7.04
Marietta *a* †	.....	.....	.....	5.59
Marietta *b* [1]	60	9	36.4	6.08
Marion [1]	51	— 5	27.3	2.10
Milfordton * [1]	50	0	29.0	2.45
Millport	50	—14	28.0	5.54
Montpelier [1]	44	— 6	22.0	3.74
Mountville	.....	.....	.....	4.06
New Alexandria [1]	52	— 2	30.1	7.38
New Berlin	.....	.....	.....	2.53
New Comerstown [1]	52	0	29.9	7.20
New Holland	57	4	30.3	6.90
North Lewisburg [1]	54	0	29.6	7.00
North Royalton	.....	.....	.....	4.58
Oberlin [1]	49	— 3	26.1	5.28
O. S. University [1]	52	4	30.1	5.61
Orangeville	49	—12	25.5	5.55

Stations.	Temperature. (Fahrenheit.) Max.	Min.	Mean	Precip'n.
Ohio—Cont'd.	°	°	°	*Ins.*
Pataskala	56	0	30.4	7.30
Piqua [1]	52	0	27.3	2.50
Plattsburg	54	3	27.6	6.67
Pomeroy [1]	60	9	34.9	3.78
Portsmouth *a* †	.....	.....	.....	4.92
Portsmouth *b* [1]	65	12	37.0	4.91
Ridge	.....	.....	.....	5.16
Ridgev'le Corners *[1]	45	0	24.7	3.97
Rittman	.....	.....	.....	5.32
Sharon Center	.....	.....	.....	2.16
Shenandoah	.....	.....	.....	4.75
Sidney †	.....	.....	.....	5.82
Springboro * [1]	54	8	34.5	5.26
Strongsville	.....	.....	.....	3.82
Sylvania	.....	.....	.....	3.02
Thurman	68	8	33.3	4.49
Tiffin † [1]	48	— 2	27.2	3.69
Tyrone	50	6	29.7	5.51
Upper Sandusky [1]	48	— 1	27.9	4.37
Vanceburg	.....	.....	.....	4.47
Van Wert	48	— 9	24.0	4.41
Walnut	.....	.....	.....	5.49
Warren	50	— 6	26.0	6.44
Wauseon [1]	48	— 9	22.7	5.34
Waverly [1]	59	9	34.4	5.33
Waynesville	.....	.....	.....	6.15
Westerville [1]	51	3	29.8	5.89
West Milton * [6]	58	4	31.7	5.23
Weymouth	48	— 8	25.6	3.43
Wheeler † [2]	.....	.....	23.8	7.26
Wooster *a* [1]	47	— 2	27.6	6.33
Wooster *b* †	.....	.....	.....	6.36
Youngstown [1]	46	— 8	26.7	5.58
Zanesville †	.....	.....	.....	5.41
Oklahoma Ter.				
Anadarko †	76	3	38.5	0.40
Burnett † [1]	71	8	36.6	0.97
Fort Reno †	70	4	38.1	0.72
Fort Sill	72	9	37.2	1.17
Gate City †	67	— 3	35.1	1.24
Guthrie †	80	8	40.2	0.73
Keokuk Falls †	69	8	36.4	1.39
Mangum †	78	6	39.5	0.86
Ponca †	70	3	30.6	0.85
Sac & Fox Agency †	70	4	37.7	1.01
Stillwater † [1]	73	6	35.2	0.40
Winnview †	71	5	38.0	2.19
Oregon.				
Albany *a* † [1]	59	34	40.0	6.38
Albany *b* * [8]	60	30	44.5	3.03
Arlington †	53	— 8	28.1	1.03
Ashland *a* * [8]	49	19	38.0	3.91
Ashland *b*	54	24	38.8	3.34
Aurora * [8]	60	28	41.2	4.13
Aurora (near)	57	22	39.2	5.44
Bake Oven * [1]	48	— 7	29.8	0.20
Bandon *	54	33	45.0	13.01
Beulah †	46	—11	24.6	1.45
Brownsville * [8]	59	26	41.8	4.93
Canyon City †	57	— 2	33.4	2.35
Comstock * [8]	60	17	40.1	6.02
Corvallis *a*	56	4‡	39.0	5.40
Corvallis *b* * [8]	54	22	40.1	5.21
Crook	50	— 7	26.9	2.33
East Portland *	56	10	.....	2.64
Eugene	60	19	41.6	5.48
Fife †	49	.....	.....	0.76
Gardiner	59	27	44.2	10.74
Glenora	51	14	35.1	19.97
Grants Pass *a* †	61	10‡	37.8	5.78
Grants Pass *b* * [8]	58	20	36.5	4.15
Happy Valley †	48	— 4	27.2	1.11
Hood River (near)	48	—10	26.2	8.03
Hubbard	58	11	40.6	5.91
Jacksonville	53	13	36.8	3.89
Joseph †	40	—16	21.0	2.32
Junction City * [8]	60	26	41.9	7.89
Lafayette * [8]	58	18	39.1	7.19
La Grande †	43	4	27.8	2.05
Lakeview †	46	— 1	24.2	2.97
Langlois	63	26	45.4	13.44
Leland * [8]	54	20	35.8	8.09
Lone Rock	50	—20	29.2	1.10
McMinnville *b* * [8]	56	28	39.5	5.51
Monmouth * [8]	59	28	41.4	4.82
Mount Angel † [1]	59	8	39.9	6.08
Newberg	56	10	39.0	5.15
New Bridge	51	12	33.2	0.90
Newport	59	29	43.8	7.81
Portland * [8]	54	12	36.9	3.66
Riddles * [8]	64	18	39.0	4.77
Roseburg * [8]	60	28	42.3	5.18
Salem *a* * [8]	56	28	41.9	4.99
Salem *b* †	.....	.....	.....	5.43
Sheridan * [8]	58	24	39.1	5.43
Silver Lake †	51	— 8	27.0	0.75
Silverton * [8]	56	18	40.2	4.45
Siskiyou * [8]	50	12	33.8	8.40
Sparta	40	3	23.8	1.80
Springfield * [8]	55	24	39.8	6.17
The Dalles †	55	— 6	30.1	1.84
Umatilla †	.....	.....	.....	0.54
Vale	50	— 5	30.0	0.38
Wagner	49	0	33.4	1.88
West Fork * [8]	56	28	40.5	7.97

Meteorological record of voluntary observers, &c.—Continued.

Stations.	Temperature. (Fahrenheit.) Max.	Min.	Mean	Precip'n.
Oregon—Cont'd.	°	°	°	*Ins.*
Weston	50	4	29.0	2.99
Williams	53	7	30.9	5.00
Pennsylvania.				
Altoona	56	2	35.5	3.21
Aqueduct *[1]	60	— 3	30.2	7.96
Blooming Grove *[1]	49	— 2	24.1	5.60
Bloomsburg	49	5	27.3	6.10
Blue Knob *[1]	48	— 8	24.0	6.59
Brookville †				7.03
Carlisle [1]	51	— 2	27.1	4.56
Clarion †				9.26
Coatesville [1]	53	5	28.9	5.74
Confluence †				5.71
Coopersburg [1]	50	5	27.8	6.50
Corry	47	—15	22.6	7.03
Davis Island Dam †.				4.99
Doylestown				5.97
Drifton †	53	— 2	23.7	3.92
Du Bois †				7.50
Dyberry † [1]	50	— 9	20.7	6.58
East Mauch Chunk	54	3	25.8	7.37
Easton [1]	51	4	27.0	6.46
Edinboro *[1]	43	— 8	21.3	
Emporium [1]	49	—13	25.5	5.91
F'ks of Neshami'y [1]			30.3	5.36
Frederick				5.21
Freeport †				6.77
Gettysburg †				3.46
Girardville [1]	53	— 2	27.9	7.00
Grampian *[1]	46	—10	23.5	6.77
Greensboro †				5.00
Hollidaysburg [1]	50	—10	29.0	6.39
Honesdale [1]	51	— 4	22.8	5.67
Huntingdon †	50	— 6	28.1	5.27
Johnstown †	54	— 4	30.0	7.76
Kane	43	— 8	20.5	5.18
Kennett Square [2]			28.0	6.29
Kilmer *[3]		7	29.7	4.62
Lancaster	51	7	29.4	4.08
Lansdale				5.71
Lebanon [1]	50	4	26.1	5.67
Le Roy †	46	— 9	21.9	3.86
Lewisburg	50	— 7	27.0	4.57
Lock Haven † [1]	50	— 5	26.6	5.28
Lock No. 4 †				5.43
Lycippus *[1]	59	14	35.3	5.34
McConnellsburg [1]	57	—*4	31.3	4.18
Mahoning †				9.28
Meadville	49	— 9	22.7	7.23
Newcastle † [1]	51	— 8	28.8	4.65
Oil City †				8.11
Ottsville				4.90
Parker †				7.80
Philadelphia *a*				4.47
Philadelphia *b*	55	9	32.9	5.89
Philadelphia *c*	54	8	32.4	4.97
Phœnixville	54	6	30.8	5.54
Point Pleasant				6.06
Pottstown	51	7	29.9	6.40
Quakertown [1]	51	3	27.3	6.93
Ridgway †				5.03
Saegerstown	47	—16	24.5	8.23
Salem Corners [1]	49	— 2	22.4	7.20
Saltsburg †				4.44
Scisholtzville				5.84
Selins Grove [1]	45	— 8	26.9	5.63
Smiths Corners				5.63
Somerset [1]	52	—10	26.5	8.38
South Eaton	49	0	24.7	5.49
State College [1]	51	— 4	25.2	5.71
Stoyestown †				7.22
Swarthmore	55	6	32.0	5.15
Uniontown [1]	58	1	34.4	4.23
Warren †				5.51
Wellsboro *† [1]	45	—10	23.0	6.55
West Chester	52	6	30.1	6.13
West Newton †				5.68
Westtown	53	5	30.0	3.95
Wilkesbarre †	53	0	27.5	7.23
Wysox [1]	51	— 1	25.1	2.92
York	58	— 5	29.6	4.76
Rhode Island.				
Bristol [1]	48	2	27.4	6.83
Kingston *a* [1]	47	— 1	25.6	9.44
Kingston *b* [1]	48	— 1	26.8	8.21
Lonsdale				8.31
Newport	46	0	30.2	
Olneyville	52	3	27.6	
Pawtucket [1]	53	5	29.0	5.82
Providence *a*	52	4	28.0	7.88
Providence *b*	54	0	26.2	7.55
Providence *c*	52	0	26.0	8.32
South Carolina.				
Aiken [1]	74	29	48.4	6.73
Anderson †				7.71
Camden †				5.13
Cheraw *a* †	75	25	47.6	7.25
Cheraw *b* †				6.10
Effingham †				4.28
Greenville †				8.25
Greenwood †				5.50
Kitchings Mills *† [5]	76	26	51.8	5.96
Longshore †	79	28	48.6	6.55
Mount Carmel †				6.97
Nichols †				3.25

Stations.	Temperature. (Fahrenheit.) Max.	Min.	Mean	Precip'n.
S. Carolina—Con.	°	°	°	*Ins.*
Port Royal *† [1]	74	38	55.9	3.73
Saint Stephens †				2.74
Simpsonville *† [1]	72	29	45.5	4.56
Society Hill †	75	30	49.5	6.75
Statesburg † [1]	74	33	50.1	5.03
Tillers Ferry †				6.13
Trial	78	28	54.1	4.03
Wateree †				5.03
Winnsboro †	82	27	48.6	4.00
Yorkville	70	27	47.0	5.74
South Dakota.				
Aberdeen †	40	—42	8.6	1.60
Alexandria †	48	—27	11.4	0.50
Ashcroft †	56	—40	11.2	0.50
Bowdle *† [1]	36	—38	6.3	0.50
Brittton †	39	—40	2.8	1.05
Brookings † [1]	50	—29	13.6	0.80
Carthage				T.
Castlewood †	35	—36	5.4	1.40
Cross †	55	—25	20.0	0.75
De Smet †	38	—35	5.2	0.60
Faulkton †	42	—35	8.4	1.72
Flandreau †	39	—29	10.3	0.95
Forestburg †	40	—30	10.5	1.10
Forest City † [6]	44	—29	12.6	
Fort Meade	56	—29	16.6	0.74
Fort Sully	49	—32	13.1	0.60
Frankfort †	39	—35	8.6	1.25
Gary †	37	—32	6.0	1.40
Highmore *† [1]	40	—36	8.4	0.15
Hotch City †	50	—29	10.6	0.75
Howard †	40	—32	9.0	1.20
Kimball † [6]	45	—27*	11.4[6]	1.18
Mellette *[1]	42	—40	11.2	0.88
Midland †	63	—28	16.7	0.45
Millbank † [1]	54	—38*	7.3	1.36
Mitchell † [1]	47	—26	12.8	1.00
Oelrichs †	54	—30	19.1	1.75
Onida † [1]	41	—30	8.4	
Parker †	45	—27	11.5	0.60
Parkston †	44	—27	13.6	1.08
Piedmont				0.73
Plankinton *[6]	43	—27	10.3	0.58
Rosebud †	56	—27	17.8	0.75
Salem †	40	—29	4.6	1.00
Sioux Falls †	40	—35	9.8	1.25
Spearfish † [1]	56	—30	17.6	2.15
Travare †	47	—18	10.7	1.80
Tyndall †	55	—22	16.0	0.80
Vermillion †	42	—26	14.3	1.30
Watertown †	37	—36	6.2	1.35
Webster † [1]	36	—42	5.7	2.90
Wentworth † [1]	41	—30	6.8	0.48
Wessington Sp'gs †	45	—26	12.8	1.60
Wolsey *† [1]	39	—32	8.4	1.00
Tennessee.				
Andersonville *[1]	65	15	40.2	7.06
Ashwood *† [1]	70	13	43.8	6.94
Austin *† [1]	68	10	40.3	4.30
Bethel Springs *[1]	68	18	46.0	8.53
Bolivar *[3]		16	41.0	5.95
Byrdstown *†	70			7.03
Carthage †				5.32
Charleston †				6.09
Clarksville [1]	67	10	39.4	4.91
Clinton †				7.66
Columbia †				6.45
Covington *a* †	69	14	42.6	6.16
Dunlap				10.91
Fayetteville *[1]	70	18	45.8	5.23
Florence Station *[1]	68	14	40.8	3.76
Franklin †	72	12	42.2	5.07
Greeneville *[1]	68	22	42.4	7.15
Hohenwald *	75	12		6.53
Jacksboro *[4]		15	40.8	6.71
Jackson *[1]	70	14	42.6	4.49
Johnsonville †				9.40
Kingston †				7.78
Lookout Mount'n † [1]	62	18	41.0	8.94
Loudon †				7.53
Lynnville *[1]	70	14	43.4	8.27
Newport *[3]	69	20	41.9	7.90
Nunnelly *[1]	73	12	42.9	4.75
Parksville *[1]	70	23	46.2	5.85
Riddleton †	67	14	41.7	5.94
Rockwood †				7.19
Rogersville *[1]	63	20	41.7	6.71
Rugby *[1]	63	12	39.2	6.48
Savannah *[1]	69	15	45.6	6.22
Springdale *[1]	72	18	43.4	8.17
Strawberry Plains †				7.65
Sweetwater †	72	1		
Tazewell †				7.31
Waynesboro *[1]	62	13	43.2	6.12
Texas.				
Albany *† [1]	74	14	45.0	0.50
Alice †	93	30	61.4	1.40
Arlington †	78	16	49.7	0.67
Arthur City †				3.99
Aurora *[1]	82	15	46.2	0.53
Austin *a* †	78	25	48.8	T.
Austin *b* *[5]	84	26	53.6	
Boerne *[3]		24	48.1	0.98
Brady †	72[h]	16[h]	46.5[h]	0.39
Brazoria † [1]	82	38	58.6	2.50

Meteorological record of voluntary observers—Continued.

Stations.	Temperature. (Fahrenheit.) Max.	Min.	Mean	Precip'n.
Texas—Cont'd.	°	°	°	*Ins.*
Brenham †	82	30	57.8	1.00
Brownwood †	76	16	49.2	0.01
Burnet *† [1]	72	24	49.9	0.78
Camp Eagle Pass	87	29	55.2	0.32
Childress † [1]	76	6	38.2	0.15
Coldwater †	71[j]	1[h]	31.5[j]	1.52
College Station	80	27	54.2	1.24
Colorado *b*				0.09
Columbia †	81	37	58.6	1.10
Corsicana *a* †	79	19	48.4	1.82
Corsicana *b* †	76	18	45.6	1.34
Cuero *b* †	79	29	56.8	1.50
Dallas *b* *† [1]	73	15	45.0	1.82
Devine	80	27	54.2	1.37
Durham †				0.05
Duval *[1]	81	27	52.8	T.
Eagle Pass †				0.17
Eastland *† [1]	72	12	46.6	0.20
Flower Bluff †	86	36	64.0	1.68
Forestburg †	71	14	44.4	0.52
Fort Brown †	84[i]	33	64.2[i]	2.13
Fort Clark	83	30	56.4	0.21
Fort Hancock	77	14	51.8	0.10
Fort McIntosh	86	32	60.8	0.00
Fort Ringgold	95	35	61.5	2.40
Fredericksburg *† [1]	77	24	50.2	0.46
Gainesville †	75	14	44.1	1.06
Graham †	75	12	43.8	0.32
Grape Vine † [1]	79	15	47.2	0.60
Hallettsville †	83	26	52.9	1.48
Hartley †	66	3	32.1	1.54
Haskell †				1.85
Hidalgo †				0.63
Highland	82	13	46.8	0.72
Houston †	79	38	57.2	2.12
Huntsville †	78	32	54.4	0.75
Kent				0.05
Laredo †				0.46
Llano †				0.01
Luling †	81	26	56.1	0.15
McGregor †	64	18	41.6	0.30
Menardville *† [1]	77	19	46.8	0.00
Mesquite † [1]	78	18	45.5	1.31
Mountain Spring †	75	14	45.5	2.22
New Braunfels †	82	27	53.5	0.69
Ochiltree †				1.70
Paris †	67	10	43.1	1.44
Quanah †	79	7	40.4	0.00
Rio Grande City †				1.93
Roby †	79	8	42.9	0.22
Rockport *[1]	80	34	43.0	
Round Rock †	84	26	54.4	0.39
San Antonio *b*	84	27	56.8	0.93
Sierra Blanca *a* †	78	24	51.6	0.00
Silver Falls † [1]	76	9	42.7	1.29
Sulphur Springs † [1]	77	20	46.9	2.48
Temple †	79	19	48.4	0.58
Twohig †	89[d]	32[e]	64.0[d]	0.30
Victoria *† [1]	78*	32[e]	56.4[e]	3.52
Waco †	80	19	48.8	T.
Utah.				
Beaver †	45	4	21.3	1.38
Blue Creek *[8]	48	—10	25.6	2.10
Castle Gate †	57	1	29.9	1.11
Cisco †	58	8	34.6	0.53
Corinne *[8]	47	— 8	26.8	1.50
Deseret † [1]	49	1	26.6	0.61
Fillmore †	58	3	31.7	1.51
Fort Du Chesne				0.44
Grouse Creek *† [1]	41	—15	18.3	1.73
Heber *[1]	50	—10	20.3	2.95
Kelton *[8]	51	—14	22.3	0.41
Lake Park	46	2	21.2	1.70
Levan † [2]			23.0	2.60
Loa †	55	—13	23.8	1.12
Logan †	46	—10	19.6	2.45
Losee † [1]	54	5	29.4	0.39
Manti †	49	—12	23.0	
Moab † [1]	56	13	33.9	0.34
Mount Carmel *† [1]	61	5	33.4	1.75
Ogden *a* [8]	47	2	28.9	2.72
Parowan †	54[k]	5[k]	30.3[l]	1.03
Promontory *[8]	40	—10	21.4	1.70
Provo City † [2]			28.4	1.25
Saint George † [1]	70	21	43.6	1.20
Scofield † [1]	49	32	12.8	1.60
Singletree †				0.90
Snowville †	40	—22	18.2	1.80
Stockton † [2]			24.2	0.98
Terrace *[8]	40	0	24.0	1.20
Vermont.				
Brattleboro *a*	50	— 8	22.1	5.61
Burlington †	44	—12	18.2	1.24
Chelsea *[1]	40	—12	12.6	3.59
Cornwall				2.84
Enosburg Falls †	46	—26	14.2	3.65
Hartland †	50	—19	16.4	5.64
Hyde Park †	48	—20	15.4	2.70
Jacksonville	50	—15	20.1	7.41
Norwich *[8]	47	—19	16.3	3.19
Saxtons River [1]	52	—16	18.1	4.84
Simonsville	42	—10	16.3	
South Royalton *[1]	48	—24	16.2	4.08
Strafford *[1]	40	—12	15.0	5.10
Vernon *[3]	46	—10	18.0	5.51

Stations.	Temperature. (Fahrenheit.) Max.	Min.	Mean	Precip'n.
Vermont—Cont'd	°	°	°	*Ins.*
Wells	44	—15	15.7	5.83
Woodstock	51	—22	16.8	5.15
Virginia.				
Abingdon †				6.60
Ashland [1]	71	14	38.1	3.62
Avon †	68	14	39.2	5.15
Bedford City †	65	18	39.0	5.30
Big Stone Gap † [1]	66	15	38.1	7.53
Birdsnest *† [1]	63	17	39.6	6.20
Blacksburg [1]	61	17	36.9	3.69
Buchanan †				4.07
Cape Charles † [1]	64	18	40.4	5.30
Charlottesville	70	17	39.4	4.06
Christiansburg †				3.60
Clarksville †				6.18
Dale Enterprise † [1]	65	10	34.4	4.47
Danville †				5.28
Emporia †				5.54
Falls Church †				3.54
Hot Springs	62	11	35.3	2.99
Irwin †	67	14	39.9	4.34
Lexington †	66	12	37.3	4.22
Marion †	64	17	39.9	6.70
Nottaway	71	13	38.2	5.40
Petersburg †	72	19	39.6	6.25
Richmond *a* †	75	11	40.8	4.93
Richmond *b* †				4.48
Riverton †				2.74
Salem †	65	19	40.8	4.69
Saluda †	66	13	39.8	5.35
Spottsville † [1]	70	17	40.5	6.22
Stanardsville †	69	14	36.1	5.29
Staunton † [1]	65	12	36.0	3.88
Stephens City †	63	7	35.3	2.87
Warsaw †	68	10	37.8	5.03
Woodstock †				2.48
Wytheville †	67	13	37.8	3.14
Washington.				
Aberdeen † [1]	51	17	34.5	10.46
Chehalis †	57	10	37.3	5.50
Chelan †	43	—15	21.2	1.55
Clyde †	52	— 7	28.9	1.70
Colfax †	44	—17	26.5	3.56
East Sound †	51	— 2	34.0	5.79
Elbe †				5.19
Ellensburg †	46	—12	20.9	1.21
Ferry †	50	14	36.9	6.55
Fort Simcoe	49	—20	23.1	3.45
Fort Spokane	47	—29	21.6	3.73
Fort Townsend [1]	53	5	35.9	3.36
Madrone †	54	10	37.5	9.65
Moxee Valley †	50	—22	25.6	2.51
Olga † [1]	48	— 4	34.6	4.49
Pine Hill *[1]	51	— 5	30.0	4.15
Pullman *† [1]	46	— 3	28.0	1.30
Rosalia † [1]	44	—20	23.6	1.99
Seattle †	56	4	39.0	6.30
Silver Creek *[1]	54	22	38.2	6.27
Tacoma †	54	5	37.4	6.55
Vashon [3]			40.6	3.15
Waterville †	45	—25	18.0	2.60
West Virginia.				
Bluefield † [1]	60	10	32.8	4.92
Buckhannon *a* †				4.61
Buckhannon *b* †	65	8	37.0	
Central Station *† [5]	62	8	37.2	6.70
Charleston *a* †				4.14
Danville *[3]	67	18	40.9	5.13
Davis				6.28
Elkhorn †	68	15	40.6	5.40
Ella † [1]	59	0	31.4	0.26
Fairmont †				5.25
Glenville †	60	8	36.0	4.60
Grafton †	64	2	34.9	4.73
Harpers Ferry †				2.2
Hinton †				5.52
Huntington †	69	13	37.2	3.63
Kingwood † [1]	58	— 3	30.8	1.65
Marlinton †	59	7	32.2	5.49
Martinsburg †	60	4	31.8	2.64
Morgantown *a* †				5.28
Morgantown *b* † [1]	63	1	36.0	5.05
New Cumberland	63	— 1	33.0	6.51
New Martinsv'le *† [1]	61	4	33.7	6.30
Nuttallburg	71	13	40.0	4.74
Parkersburg † [1]	61	8	35.6	3.28
Philippi †				4.58
Pleasant Hill *[3]	58	— 2	27.9	5.32
Point Pleasant † [1]				4.91
Rowlesburg †				3.84
Spencer †	60	9	39.0	5.84
Tannery *[1]	59	0	32.8	
Weston †				4.52
Wheeling *a* †				5.62
Wheeling *b* †	60	6	35.2	5.89
White Sul. Springs †				2.20
Wisconsin.				
Amherst	39	—27	11.8	3.22
Appleton †	46	—18	13.4	1.41
Baraboo †	40	—24	16.0	2.78
Barron †	40	—30	7.9	2.91
Bayfield	39	—27	9.7	4.10
Beaver Dam	38	—20	16.6	1.08
Beloit [1]	42	—20	17.4	2.10
Black River Falls †	43	—28	11.8	1.34

Meteorological record of voluntary observers, &c.—Continued.

Stations.	Temperature. (Fahrenheit.) Max.	Min.	Mean	Precip'n.
Wisconsin—Cont'd.	°	°	°	*Ins.*
Butternut †	42	—37	5.2	1.34
Cadiz *[2]	.....	—24	12.6	1.56
Centralia	40	—28	11.8	0.91
Chippewa Falls †	.....	.....	.....	2.03
Columbus	43	—25	16.6	2.38
Crandon †	37[b]	.....	.....	2.25[b]
Cumberland	35	—29	0.8	.....
Delavan (near) †	42	—20	15.5	0.66
Depere	46	—26	13.0	2.15
Eau Claire	39	—25	9.8	2.70
Florence †	45	—27	11.6	2.48
Fond du Lac *[1]	39	—26	15.0	1.27
Grantsburg †	38	—27	12.0	2.35
Harvey †	39	—23	15.4	1.57
Hillsboro	41	—25	10.9	1.75
Hudson	43	—22	10.7	3.10
Janesville	40	—16	16.4	1.41
Juneau †	41	—24	15.7	1.14
Koepenick *† [1]	56	—22	14.9	2.10
Lancaster †	39	—24	11.2	1.95
Lincoln [2]	.....	.....	16.4	1.49
Madison † [1]	38	—21	15.0	1.04
Manitowoc † [1]	38	—21	18.8	1.44
Meadow Valley †	45	—30	12.6	1.08
Medford *a* †	.....	.....	.....	2.65
Medford *b* †	45	—26	10.8	2.25
Menomonie [1]	43	—29	10.6	3.53
Mineral Point	42	—24	16.6	0.85
Neillsville †	46	—28	10.6	2.37
New Holstein †	37	—26	10.0	0.64
Oconomowoc †	40	—33	15.2	0.93
Oconto	42	—17	15.2	2.34
Osceola † [1]	41	—33	7.8	2.45
Oshkosh †	38	—21	14.0	1.27
Pepin	40	—28	8.2	2.60
Portage †	.....	.....	.....	2.09
Port Washington	40	—19	18.6	0.20[b]
Prai[illegible]e du Chien	43	—26	13.7	1.00
Raymond	40	—19	15.6	1.58
Reedsburg † [1]	41	—26	14.4	0.82
Sharon † [1]	41	—17	17.8	1.94
Shawano	44	—20	15.5	1.87
Shell Lake	40	—30	8.1	1.74
Sparta *b* † [1]	42	—30	13.2	1.48
Stevens Point	36	—35	9.4	0.87
Valley Junction †	40	—34	9.8	1.27
Viroqua	39	—26	11.1	1.97
Watertown †	43	—22	13.6	1.68
Waukesha †	.....	.....	.....	1.21
Westfield †	40	—26	14.1	2.95
Weston *† [3]	48	—22	9.6	3.58
Whitehall †	44	—35	9.6	1.04
Wyoming.				
Big Horn Ranch † [1]	56	—25	19.6	0.25
Camp Pilot Butte	38	—16	17.4	1.15
Fort McKinney	53	—30	19.8	0.34
Fort Washakie	47	—16	20.7	0.54
Fort Yellowstone	38	—16	15.6	0.79
Lander	45	—10	21.0	1.24
Laramie *b*	49	— 9	20.7	0.11
Lusk †	46	—22	19.0	0.32
Saratoga †	43	—13	17.6	0.90
Wheatland †	60	— 8	29.0	0.40
Canada.				
Fort Francis, Ont.	37	—46	—4.0	1.15
Mexico.				
Leon de Aldamas [1]	79	43	60.7	T.
West Indies.				
Hamilton, Ber [1]	70	53	63.1	1.43
Grand Turk Island	.....	.....	.....	1.65

Reports received too late to be used in general discussion of weather for February, 1893.

Alabama.				
Jasper † [1]	75	23	49.1	6.17
Uniontown	76	31	54.4	6.33
Arizona.				
Calabasas †	74	27	49.8	0.72
Arkansas.				
Texarkana †	75	32	49.8	0.07
California.				
Biggs	.....	.....	.....	3.46
Guinda	.....	.....	.....	4.30
Oakland *a*	66	35	48.7	3.25
Portersville *b*	.....	.....	.....	2.20
Point Lobos	61	38	48.7	2.53
Williams *b*	68	34	49.2	2.80
Colorado.				
Fort Collins †	67	—10	26.9	0.54
Idaho.				
Martin †	39	—21	15.1	1.93
Illinois.				
Lagrange †	46	—13	21.1	1.79
Muddy Valley *[2]	54[d]	3[d]	29.8[d]	3.96
Kansas.				
Burr Oak [2]	59	—10	.....	0.60
Downs	.....	.....	.....	0.53
Lawrence	68	— 6	27.1	1.78
Mankato † [1]	65	—13	25.2	0.20
N. England Ranch †	70	— 9	28.8	0.12
Mississippi.				
Clarksdale †	73	20	49.2	5.36
Duck Hill †	73	24	50.8	5.00
Montana.				
Fort Custer	48*	—44	12.0	0.72
Nebraska.				
De Soto *[1]	50	—16	19.3	0.91
Ewing †	.....	.....	.....	0.52
Tecumseh *† [1]	56	—10	22.9	1.65
New Mexico.				
Embudo	60	12	38.4	0.37
Las Cruces †	71	14	44.5	1.26
Taos †	54	5	30.4	1.32
Oregon.				
Forest Grove	56	22	35.2	5.29
Texas.				
Panter *† [3]	78[d]	15[d]	41.4[d]	0.35

Received too late for publication in January, 1893.

Alabama.				
Jasper † [1]	72	— 1	37.5	1.22
Tuscaloosa †	72	10	38.7	.....
Uniontown	72	15	42.5	2.19
California.				
Campo Seco	.....	.....	.....	3.55
Healdsburg	.....	.....	.....	4.12
Newcastle *a* †	56	26	40.6	5.16
Oakland *a*	64	32	42.3	3.68
Rio Vista	.....	.....	.....	3.15
Upper Lake	66	28	45.7	4.08
Yreka †	48	11	32.7	.....
Colorado.				
Fort Collins †	67	— 2	32.6	0.02
Florida.				
Pierson	80	21	51.4	.....
Indiana.				
Delphi	52	—18	16.4	2.22
Laconia *[1]	62	—11	23.5	1.95
Terre Haute †	.....	.....	.....	1.28
Iowa.				
Algona *[1]	34	—18	8.3	0.35
Kansas.				
Kirwin †	.....	.....	.....	0.00
Lawrence	50	0	22.4	0.08
Marmaton *	62	— 4	.....	0.48
Pauline *[1]	49	4	25.8	0.05
Topeka	52	— 3	25.4	0.10
Minnesota.				
Caledonia †	31	—23	4.7	1.65
Crookston †	32	—37	—4.5	1.48
Fort Ripley †	.....	.....	.....	0.92
Ortonville †	.....	.....	.....	1.20
Redwood Falls †	.....	.....	.....	0.64
Wabasha *[5]	28	—21	5.8	1.70
Nebraska.				
Beatrice †	56	—19	21.1	T.
Creighton *† [1]	55	—16	15.4	0.86
De Soto *[1]	46	— 9	16.1	0.21
Ewing †	.....	.....	.....	0.12

Reports received too late, &c.—Continued.

Stations.	Temperature. (Fahrenheit.) Max.	Min.	Mean	Precip'n.
Nebraska—Cont'd.	°	°	°	*Ins.*
Fairbury *	54	— 2	.....	0.02
Mullen *[1]	82	—10	30.3	0.01
New Jersey.				
Camden	52	— 7	21.5	2.58
New Mexico.	0	0	0	*Ins.*
Las Cruces †	73	10	43.4	0.07
New York.				
Watkins	50	— 7	16.5	1.24
Oregon.				
Umatilla †	.....	.....	.....	0.56
Vernonia *[1]	50	13	32.7	2.98
Pennsylvania.				
Altoona	54	2	28.7	1.65
Pennsylvania—Con.	°	°	°	*Ins.*
Lycippus	.....	.....	.....	2.12
South Carolina.				
Winnsboro †	64	8	36.3	2.12
South Dakota.				
Brookings † [1]	40	—19	12.2	0.30
Travare †	35	—38	3.2	1.75
Utah.				
Thistle †	.....	.....	.....	1.50
Mexico.				
Ciudad P. Diaz	79	30	55.2	1.04
Vera Cr'z	80	60	69.7	0.87
West Indies.				
Grand Turk Island	.....	.....	.....	0.85

*Extremes of temperature from observed readings of dry thermometer.
† Weather Bureau instruments.
‡ Minimum temperature occurred during night of January 31-February 1.
A numeral following the name of a station indicates the hours of observation from which the mean temperature was obtained, thus:
[1] Mean of 7 a. m. + 2 p. m. + 9 p. m. + 9 p. m. ÷ 4.
[2] Mean of 8 a. m. + 8 p. m. ÷ 2.
[3] Mean of 7 a. m. + 7 p. m. ÷ 2.
[4] Mean of 6 a. m. + 6 p. m. ÷ 2.
[5] Mean of 7 a. m. + 2 p. m. ÷ 2.
[6] Mean from readings at various hours reduced to true daily mean by special tables.
[7] Mean from hourly readings of thermograph.
[8] Mean of 7 a. m. + 2 p. m. + 9 p. m. ÷ 3.
The absence of a numeral indicates that the mean temperature has been obtained from daily readings of the maximum and minimum thermometers.
An Italic letter following the name of a station, as "Livingston *a*," "Livingston *b*," indicates that two or more observers, as the case may be, are reporting from the same station. A small Roman letter following the name of a station, or in figure columns, indicates the number of days missing from the record; for instance, "*a*" denotes 14 days missing.
No note is made of breaks in the continuity of temperature records when the same do not exceed two days. All known breaks, of whatever duration, in the precipitation record receive appropriate notice.
NOTE.—The following changes have been made in names of stations: Missouri, Concordia, changed to Emma.

Data from Canadian stations for the month of February, 1893.

Station.	Pressure. Mean not reduced.	Mean reduced.	Departure from normal.	Temperature. Mean.	Departure from normal.	Precipitation. Total.	Departure from normal.	Prevailing direction of wind.
	Inches.	*Inches.*	*Inches.*	°	°	*Inches.*	*Inches.*	
Saint Johns, N. F	29.66	29.81	.....	20.2	— 2.0	5.86	.....	n.
Halifax, N. S	29.83	29.97	— .05	19.3	— 1.7	5.67	+ 0.97	n.
Grand Manan, N. B	29.92	29.97	.....	21.2	.....	5.25	+ 1.69	w.
Yarmouth, N. S	29.90	29.98	— .06	23.2	— 2.3	7.37	+ 1.55	n.
Saint Andrews, N. B	29.90	29.95	.....	17.4	.....	5.22	+ 1.46	nw.
Charlottetown, P. E. I	29.88	29.92	.....	15.6	.....	1.83	— 1.87	sw.
Chatham, N. B	29.89	29.91	— .10	9.1	— 0.4	2.54	— 0.77	w.
Father Point, Que	29.94	29.97	— .06	7.4	— 2.6	0.72	— 0.90	nw.
Quebec, Que	29.69	30.05	+ .01	8.0	— 2.0	1.88	— 1.51	w.
Montreal, Que	29.86	30.09	+ .03	11.1	— 1.9	2.87	+ 0.05	sw.
Rockliffe, Ont	29.54	30.10	+ .04	1.0	— 5.5	1.24	— 1.08	nw.
Kingston, Ont	29.76	30.10	+ .02	14.1	— 2.4	2.66	+ 0.22	ne.
Toronto, Ont	29.71	30.12	+ .02	18.0	— 2.5	3.69	+ 1.35	w.
White River, Ont	28.64	30.13	.....	— 3.2	.....	0.31	.....	w.
Port Stanley, Ont	29.45	30.13	.....	19.4	.....	6.52	+ 3.60	w.
Saugeen, Ont	29.34	30.11	+ .05	14.8	— 2.7	3.45	+ 1.01	s.
Parry Sound, Ont	29.35	30.10	+ .04	9.0	— 3.0	2.74	+ 0.34	w.
Port Arthur, Ont	29.30	30.07	— .04	— 1.2	— 6.7	2.02	+ 0.69	w.
Winnipeg, Man	29.24	30.17	+ .01	— 9.2	— 4.2	1.52	+ 0.35	n.
Minnedosa, Man	28.13	30.13	— .02	— 6.4	— 0.4	0.95	— 0.03	w.
Qu'Appelle, Assiniboia	27.70	30.19	+ .05	— 6.8	— 4.3	1.54	+ 0.87	w.
Medicine Hat, Assiniboia	27.70	30.21	+ .07	1.6	— 8.9	0.70	+ 0.26	w.
Swift Current, Assiniboia	27.40	30.22	+ .08	— 1.6	—7.0	1.26	+ 0.50	nw.
Spences Bridge, B. C	29.28	30.16	.....	16.6	.....	0.81	.....	e.
Edmonton, Alberta	27.67	30.20	+ .10	3.3	— 3.3	0.20	— 0.26	nw.
Battleford, Saskatchew'n	28.30	30.22	.....	— 6.8	.....	T.	.....	w.
Hamilton, Bermuda	30.04	30.20	.....	62.2	.....	2.02	.....	ne.
January, 1893.								
Battleford	28.26	30.17	.....	— 2.5	.....	0.03	.....	w.
Montreal	29.72	29.95	— .13	4.3	— 5.7	2.48	— 0.80	w.
Prince Albert	28.46	30.14	.....	— 7.6	.....	0.24	.....	nw.

Table of miscellaneous meteorological data for February, 1893—Weather Bureau observations.

Districts and stations.	Elevation above sea-level, feet.	Length of record, years.	Pressure, in inches.			Temperature of the air, in degrees Fahrenheit.										Humidity and precipitation.					Wind.					Cloudless days.	Partly cloudy days.	Cloudy days.	Average cloudiness, tenths.	Mean temperature data since opening of station.			
			Mean pressure, 8 a. m. and 8 p. m. + 2.	Mean reduced.	Departure from normal.	Mean max. and min. + 2.	Departure from normal.	Maximum.	Date.	Mean maximum.	Minimum.	Date.	Mean minimum.	Greatest daily range.	Mean temperature of the dew-point.	Mean relative humidity, per cent.	Precipitation, in inches.	Departure from normal.	Days with .01, or more.	Total movement, miles.	Prevailing direction.	Maximum velocity. Miles per hour.	Maximum velocity. Direction.	Maximum velocity. Date.					Highest for month.	Year.	Lowest for month.	Year.
New England.						26.3	— 2.6										5.38	+ 1.4														
Eastport	53	20	29.91	29.97	+ .01	19.2	— 3.3	47	15	26	— 7	5	12	33	9	65	3.26	— 0.9	14	8,771	nw.	50	ne.	20	8	10	10	5.9	27.5	1877	16.7	1875
Portland	103	22	29.91	30.02	+ .01	20.2	— 3.5	53	15	28	— 6	5	12	38	13	72	4.51	+ 0.9	14	6,232	n.	38	s.	10	9	10	9	5.4	31.8	1877	19.2	1875
Manchester	247	6	29.78	30.06	.....	21.2	.....	51	15	30	— 6	6	13	32	13	72	5.18	.....	16	5,348	nw.	42	nw.	20	8	9	11	5.6	28.2	1890	20.7	1889
Northfield	872	6	29.09	30.10	.....	13.7	.....	48	7	24	—20	5	4	45	8	81	2.47	.....	16	7,097	n.	52	n.	20	6	10	12	6.9	22.2	1890	11.6	1889
Boston	125	23	29.93	30.07	+ .02	20.8	— 1.0	53	15	35	— 1	5	19	36	18	73	6.22	+ 2.6	16	9,476	w.	45	w.	20	9	6	13	6.1	33.2	1890	20.5	1885
Nantucket	14	7	30.06	30.07	— .03	29.0	— 2.2	48	7	35	6	21	23	26	24	81	3.90	+ 0.6	11	10,329	nw.	50	se.	22	8	6	14	6.4	35.6	1890	27.9	1889
Woods Holl	.....	15	.....	.....	.....	28.0	— 3.3	48	7	35	1	5	21	31	.....	.....	7.18	+ 3.7	15	13,453	nw.	66	sw.	20	8	11	9	5.9	35.7	1880	24.1	1875
Vineyard Haven	.....	7	.....	.....	.....	30.5	— 2.8	50	7	39	4	5	22	33	.....	.....	3.85	+ 0.6	14	.....	nw.	.....	.....	...	7	6	15	.....	38.4	1890	29.9	1889
Block Island	27	13	30.06	30.09	+ .02	28.6	— 2.9	47	10	34	6	5	23	29	23	76	6.06	+ 1.3	11	13,331	nw.	69	nw.	20	7	11	10	5.9	37.2	1890	24.2	1885
Narragansett Pier	.....	11	.....	.....	.....	27.2	— 1.9	47	10	35	0	21	19	35	.....	.....	6.61	+ 1.3	14	.....	sw.	.....	.....	...	7	6	15	.....	35.5	1890	32.4	1885
New Haven	107	21	29.97	30.09	.00	25.9	— 2.6	51	15	33	2	5	19	30	20	79	6.23	+ 2.0	17	7,042	nw.	46	nw.	22	8	7	13	6.0	35.6	1877	19.7	1885
New London	47	23	30.04	30.09	— .01	27.6	— 2.9	48	10	35	3	21	20	30	20	75	5.93	+ 1.9	17	5,975	nw.	42	s.	10	7	11	10	6.3	36.8	1890	22.7	1885
Mid. Atlantic States.						34.4	— 2.1										4.78	+ 1.5														
Albany	85	20	30.02	30.12	+ .04	21.6	— 4.6	51	10	29	— 6	5	14	36	18	85	4.63	+ 2.1	15	6,451	nw.	40	nw.	20	3	7	18	7.7	33.0	1884	14.7	1885
New York, N. Y	185	23	29.92	30.13	+ .01	29.6	— 2.6	54	10	36	4	5	23	26	21	69	7.81	+ 4.0	13	9,110	nw.	45	nw.	20	5	10	13	6.6	40.4	1890	23.1	1885
Harrisburg	377	5	29.74	30.17	.....	29.2	.....	52	15	36	7	20	23	25	22	76	4.66	.....	13	6,802	nw.	48	nw.	19	6	8	14	6.5	37.6	1890	25.2	1889
Philadelphia	117	23	30.03	30.16	+ .03	32.0	— 3.2	55	15	38	9	20	26	23	24	73	4.85	+ 1.6	14	8,389	nw.	46	w.	19	6	8	14	6.6	41.4	1890	23.4	1885
Atlantic City	53	20	30.09	30.14	+ .04	32.0	— 2.0	60	15	38	9	5	26	30	26	78	3.43	+ 0.1	14	9,600	nw.	54	nw.	20	8	7	13	6.2	41.2	1890	25.7	1885
New Brunswick	.....	.....	.....	.....	.....	28.6	.....	54	10	36	6	20	22	30	.....	.....	5.73	.....	12	.....	nw.	.....	.....	...	1	10	17	.....	.....	.....	.....	.....
Baltimore	179	23	29.96	30.16	+ .02	34.0	— 3.0	61	15	41	11	20	27	26	25	72	4.43	+ 0.9	14	6,628	nw.	45	nw.	19	9	10	9	5.9	43.4	1890	28.5	1885
Washington, D. C.	112	23	30.05	30.18	+ .04	35.1	— 1.0	65	15	43	11	21	27	26	24	68	4.25	+ 0.9	13	5,877	nw.	42	nw.	20	9	7	12	5.7	43.4	1890	26.9	1885
Cape Henry	.....	19	.....	.....	.....	43.8	+ 0.6	67	25	52	22	21	35	31	.....	.....	3.47	— 0.1	14	.....	sw.	.....	.....	...	12	4	12	.....	52.2	1890	35.5	1885
Lynchburg	685	22	29.43	30.20	+ .06	39.4	— 1.5	68	16	47	18	21	31	28	32	80	5.43	+ 1.9	15	3,631	nw.	36	nw.	20	8	8	12	6.2	47.2	1890	31.6	1885
Norfolk	57	23	30.11	30.18	+ .04	41.9	— 1.8	70	16	50	23	20	34	31	37	86	4.04	+ 0.4	11	7,440	ne.	42	nw.	22	10	7	11	5.5	52.4	1890	37.2	1885
S. Atlantic States.						50.9	+ 0.3										4.60	+ 0.9														
Charlotte	773	15	29.33	30.18	+ .03	44.6	— 1.3	67	2	53	26	6	37	28	33	71	7.46	+ 3.1	16	5,535	ne.	30	nw.	18	11	3	14	5.6	52.8	1890	38.5	1885
Hatteras	11	13	30.19	30.20	+ .07	47.6	— 0.1	65	15	54	30	21	41	26	41	82	2.49	— 2.0	11	10,633	n.	44	w.	22	9	10	9	5.6	56.4	1890	41.2	1885
Kittyhawk	9	17	30.15	30.16	+ .03	44.1	— 1.4	74	16	52	24	20	36	33	40	85	2.14	— 1.9	14	10,877	sw.	56	sw.	10	9	3	16	6.3	53.2	1890	37.7	1875
Raleigh	388	7	29.76	30.19	+ .01	43.8	— 1.2	72	2	52	21	21	36	31	38	81	6.17	+ 2.2	13	5,168	sw.	34	nw.	22	12	2	14	6.1	52.7	1890	38.2	1889
Southport	34	18	30.14	30.17	+ .03	51.3	+ 2.0	70	15	59	32	5	43	26	43	77	4.95	+ 2.0	12	7,083	ne.	34	sw.	22	8	9	11	5.6	56.2	1890	42.5	1885
Wilmington	78	23	30.10	30.19	+ .03	52.3	+ 1.6	76	3	61	31	5	43	31	45	83	2.94	— 0.4	14	7,206	ne.	40	sw.	22	9	7	12	5.6	58.4	1890	44.4	*
Charleston	52	23	30.14	30.19	+ .04	55.7	+ 2.0	78	16	63	38	23	48	23	46	78	2.97	— 0.5	14	6,732	w.	44	ne.	27	5	16	7	5.6	60.6	1890	47.4	1889
Columbia	.....	6	.....	.....	.....	50.8	.....	74	17	60	30	5	41	32	.....	.....	4.83	.....	15	.....	ne.	.....	.....	...	9	7	12	.....	57.6	1890	44.0	1889
Augusta	209	22	29.99	30.22	+ .05	50.8	— 1.2	74	17	59	31	23	42	33	41	77	5.26	+ 1.5	13	4,951	ne.	33	nw.	22	6	9	13	6.5	58.2	1890	42.7	1885
Savannah	98	23	30.08	30.19	+ .02	56.8	+ 1.0	81	17	66	34	23	48	32	47	80	4.73	+ 1.6	12	6,474	ne.	30	sw.	17	7	12	9	5.6	61.2	1890	48.0	1889
Jacksonville	43	22	30.13	30.18	+ .03	61.6	+ 1.8	82	16	70	41	23	53	29	52	80	6.87	+ 3.7	10	5,343	sw.	42	se.	21	7	11	10	5.9	65.6	1891	52.4	1889
Florida Peninsula.																																
Jupiter	28	6	30.13	30.16	.....	70.2	.....	87	28	77	45	20	64	26	64	83	3.06	.....	8	7,338	s.	29	ne.	4	13	11	4	4.3	71.6	1891	64.8	1889
Key West	22	23	30.14	30.16	+ .04	72.6	+ 0.1	82	28	77	59	21	68	16	65	79	0.94	— 0.8	9	7,273	e.	32	nw.	22	11	14	3	4.5	75.0	1883	66.0	1886
Micco	.....	5	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	3.11	.....	.....	.....	.....	.....	.....	...	.....	.....	.....	.....	69.6	1891	60.3	1889
Tampa	36	....	30.13	30.17	.....	67.9	.....	83	14	76	44	23	58	30	59	83	1.71	.....	8	4,507	ne.	25	se.	12	6	21	1	4.6	.....	.....	.....	.....
Titusville	44	6	30.14	30.18	.....	66.6	.....	86	28	75	41	23	58	34	59	85	3.15	.....	10	7,573	se.	36	n.	8	15	9	4	3.5	68.6	1891	57.0	1889
Eastern Gulf States.						55.0	+ 1.0										4.44	— 0.2														
Atlanta	1,131	15	28.97	30.20	+ .02	46.2	— 1.6	70	2	53	30	8	39	32	37	74	5.45	+ 0.5	15	7,839	nw.	34	nw.	22	5	8	15	6.7	54.8	1890	39.5	1885
Pensacola	56	14	30.08	30.14	— .02	59.2	+ 2.0	71	28	66	39	8	52	26	53	86	3.63	— 0.3	12	6,999	n.	40	sw.	21	6	10	12	6.3	63.3	1887	50.7	1885
Auburn	.....	12	.....	.....	.....	51.6	— 0.5	76	16	60	34	23	43	30	.....	.....	7.43	.....	9	.....	se.	.....	.....	...	6	6	16	.....	58.2	1890	42.7	1885
Mobile	57	23	30.07	30.14	— .01	58.2	+ 2.7	72	3	65	36	8	51	26	51	84	3.65	— 1.0	15	5,878	n.	30	w.	17	5	9	14	6.9	62.5	1887	48.3	1885
Montgomery	257	21	29.87	30.15	— .01	54.6	+ 1.1	79	16	63	34	8	46	33	43	73	4.92	— 0.4	11	5,572	e.	30	w.	21	4	3	21	7.6	59.8	1890	45.4	1885
Meridian	358	....	29.75	30.14	.....	53.1	.....	76	16	61	27	8	45	35	45	80	8.43	.....	12	5,329	s.	30	sw.	23	8	6	14	6.5	.....	.....	.....	.....
Vicksburg	254	22	29.84	30.11	— .04	53.8	+ 0.4	73	14	62	30	8	46	30	42	68	4.05	— 0.8	10	6,017	sw.	30	nw.	21	8	3	17	6.9	60.0	1890	46.7	1885
New Orleans	54	23	30.06	30.12	.00	61.2	+ 2.7	79	27	69	39	8	53	26	52	78	4.92	+ 0.6	10	7,143	n.	30	ne.	26	11	9	8	4.8	65.2	1887	53.1	1885
Port Eads	.....	.....	.....	.....	.....	58.8	.....	75	16	66	49	*	52	22	.....	.....	4.62	.....	4	.....	se.	.....	.....	...	3	14	11	.....	.....	.....	.....	.....
Western Gulf States.						49.6	— 1.8										2.42	— 1.4														
Shreveport	249	22	29.84	30.11	— .02	51.3	— 0.5	75	14	60	30	8	43	33	39	69	1.58	— 3.0	10	6,142	nw.	35	nw.	21	10	4	14	6.0	57.4	1890	45.0	1885
Fort Smith	492	11	29.63	30.17	+ .05	39.9	— 3.2	66	*	51	13	7	29	48	30	70	3.11	— 0.3	10	5,203	e.	30	w.	9	12	9	7	4.7	48.0	1890	35.8	1885
Little Rock	302	14	29.82	30.16	+ .02	42.6	— 3.6	71	1	52	19	8	33	36	32	71	5.48	— 0.6	13	6,319	n.	33	w.	21	7	7	14	6.5	54.0	1882	40.8	1886
Corpus Christi	20	7	30.07	30.09	.....	58.4	.....	88	27	65	33	8	52	25	53	84	6.27	.....	12	7,913	n.	40	n.	3	5	6	17	6.8	64.0	*	57.0	1889
Galveston	42	22	30.07	30.11	.00	57.6	— 0.1	72	27	63	37	8	52	20	54	91	1.99	— 1.0	14	7,953	se.	36	ne.	7	9	6	13	6.2	63.7	1890	52.6	1885
Palestine	511	12	29.57	30.14	+ .01	50.4	— 2.3	78	27	60	24	2	40	38	39	74	1.25	— 2.6	12	5,341	ne.	25	s.	14	5	6	17	7.2	60.7	1882	45.6	1885
San Antonio	679	14	29.40	30.14	+ .02	55.6	— 1.1	84	27	66	26	8	46	34	39	58	1.11	— 1.9	10	5,295	n.	30	n.	14	7	7	14	6.5	62.2	1892	53.0	1883
Ohio Val. & Tenn.						56.8	— 1.7										5.74	+ 1.5														
Chattanooga	783	15	29.36	30.21	+ .06	46.2	— 0.3	70	1	54	22	8	39	36	42	93	8.02	+ 2.5	15	4,939	nw.	30	sw.	23	3	13	12	6.7	54.0	1890	38.4	1885
Knoxville †	980	23	29.12	30.20	+ .04	44.0	— 0.3	70	2	51	18	8	37	33	34	74	7.96	+ 2.8	17	4,476	w.	33	w.	17	7	11	10	5.9	51.8	1890	34.0	1885
Memphis	330	22	29.80	30.17	+ .02	43.6	— 2.0	71	1	52	16	8	35	37	34	74	6.33	+ 0.8	13	6,441	n.	34	e.	16	10	5	13	5.8	52.9	1882	39.0	1885
Nashville	553	22	29.56	30.17	+ .03	41.7	— 1.2	70	1	50	13	8	34	32	34	76	4.88	— 0.6	12	5,271	s.	30	s.	21	5	3	20	7.6	51.7	1882	33.4	1885
Lexington	989	10	29.04	30.14	.....	36.5	— 0.7	67	2	45	9	8	28	32	28	73	4.44	+ 0.6	16	10,842	nw.	60	w.	23	7	6	15	6.8	45.1	1890	30.3	1875
Louisville	551	22	29.55	30.16	+ .02	36.2	— 2.8	60	14	45	3	8	27	31	28	72	4.58	0.0	14	6,967	w.	48	w.	23	8	8	12	6.6	47.9	1882	28.8	1875
Indianapolis	766	22	29.29	30.17	+ .05	30.0	— 2.1	54	6	38	0	7	22	28	23	78	6.16	+ 2.8	15	5,767	w.	28	nw.	14	4	10	14	7.1	42.2	1882	20.5	1885
Cincinnati	628	23	29.46	30.17	+ .03	34.0	— 2.7	59	2	42	8	8	26	29	28	82	4.84	+ 1.0	16	6,538	nw.	38	w.	19	6	7	15	6.6	46.5	1882	23.2	1885
Columbus	868	15	29.18	30.15	+ .03	30.8	— 1.4	53	14	38	4	20	24	27	26	84	7.65	+ 4.0	21	8,872	nw.	56	nw.	23	0	6	22	8.2	41.2	1882	19.4	1885
Pittsburg	820	22	29.23	30.15	+ .02	31.8	— 2.2	59	6	41	2	*	23	33	27	84	4.74	+ 2.0	19	4,980	nw.	36	nw.	3	1	12	15	7.7	42.0	1890	21.0	1875
Parkersburg	638	5	29.40	30.18	.....	35.6	.....	63	3	44	8	20	27	30	28	75	5.92	.....	17	5,987	w.	41	w.	19	3	12	13	7.3	43.4	1890	30.0	1889
Lower Lake Region.						33.2	— 3.6										3.59	+ 0.9														
Buffalo	690	23	29.32	30.11	+ .03	21.2	— 3.3	47	14	28	— 4	20	14	28	17	80	4.21	+ 1.5	19	9,321	sw.	60	sw.	10	1	13	14	7.4	32.6	1882	12.8	1875
Oswego	335	23	29.71	30.10	+ .01	19.8	— 4.4	43	6	26	— 6	5	13	34	16	79	2.11	— 0.4	20	9,969	se.	48	w.	3	4	1	23	8.2	32.4	1882	12.7	1885
Rochester	523	23	29.54	30.14	+ .05	21.4	— 3.3	44	6	28	— 1	20	14	27	17	81	3.31	+ 0.7	20	7,346	sw.	38	sw.	10	2	6	20	8.1	32.6	1882	13.7	1885
Erie	714	20	29.31	30.13	+ .05	24.5	— 3.7	50	6	32	— 2	20	17	32	20	84	5.85	+ 2.4	22	8,892	w.	45	se.	6	3	9	16	7.2	36.5	1882	16.4	1875
Cleveland	740	23	29.29	30.13	+ .03	26.3	— 1.9	52	6	34	1	21	19	31	21	81	3.76	+ 0.9	20	11,352	nw.	60	nw.	19	5	4	19	7.5	37.0	1882	15.5	1875
Sandusky	629	16	29.44	30.16	+ .06	26.1	— 2.3	49	6	33	— 2	20	19	30	20	81	3.12	0.0	17	7,474	w.	47	nw.	19	1	7	20	8.0	38.0	1882	18.1	1885
Toledo	674	23	29.38	30.15	+ .06	24.6	— 3.6	46	6	32	— 3	20	17	31	20	86	2.31	+ 0.3	15	8,256	nw.	45	se.	17	9	4	15	6.4	39.1	1882	17.1	1875
Detroit	724	23	29.31	30.13	+ .05	22.0	— 5.2	42	6	29	— 6	20	15	32	18	83	4.05	+ 1.8	17	8,903	sw.	43	sw.	3	8	8	12	6.2	39.9	1882	12.0	1875
Upper Lake Region.						15.3	— 4.0										2.16	+ 0.1														
Alpena	609	21	29.39	30.10	+ .03	14.6	— 2.9	40	28	24	—14	20	5	35	10	82	1.46	— 0.8	13	7,284	w.	38	sw.	28	9	8	11	5.9	28.6	1882	3.4	1875
Cheboygan	591	....	29.39	30.08	.....	11.4	.....	41	13	22	—15	20	1	41	8	86	0.61	.....	11	6,569	sw.	40	sw.	28	8	11	9	5.0	.....	.....	.....	.....
Escanaba	.....	22	.....	.....	.....	10.0	— 3.6	36	15	21	—21	8	— 1	41	.....	.....	2.94	+ 1.5	14	.....	sw.	.....	.....	...	9	8	11	.....	27.7	1878	— 0.5	1875
Grand Haven	628	22	29.38	30.11	+ .04	20.6	— 3.9	44	27	28	— 2	20	13	26	17	89	2.17	0.0	18	8,158	w.	48	w.	28	2	7	19	8.1	35.9	1882	12.5	1875
Manistee	615	5	29.38	30.10	.....	17.8	.....	40	27	25	— 3	4	10	31	14	87	1.85	.....	20	6,546	nw.	46	sw.	28	5	6	17	7.4	28.0	1890	17.4	1889
Marquette	734	21	29.18	30.04	— .02	12.2	— 3.3	42	13	22	—19	2	3	41	8	86	1.93	+ 0.3	15	7,423	nw.	38	nw.	19	10	3	15	6.2	32.9	1878	2.2	1875
Port Huron	639	19	29.41	30.15	+ .07	20.3	— 2.2	41	28	28	— 6	20	13	29	15	82	3.57	+ 1.1	17	8,515	sw.	47	nw.	19	6	16	6	5.9	32.4	1882	9.4	1875
Sault Ste. Marie	642	5	29.32	30.06	.....	9.1	.....	36	*	18	—23	4	0	35	4	80	1.77	.....	16	6,745	se.	41	nw.	3	3	8	17	7.6	16.8	1892	7.0	1889
Chicago	824	23	29.19	30.13	+ .04	21.2	— 6.5	46	27	28	— 9	7	15	29	18	84	2.44	+ 0.1	14	13,979	w.	60	sw.	28	7	8	13	6.1	38.2	1882	14.7	1875
Milwaukee	673	23	29.34	30.11	+ .02	17.9	— 5.1	39	14	25	—16	4	10	34	12	77	1.51	— 0.4	12	8,891	nw.	46	sw.	28	7	12	9	6.0	35.5	1882	7.5	1875
Green Bay	617	7	29.39	30.11	+ .01	13.0	— 3.3	41	27	22	—21	4	4	35	8	76	1.82	— 1.1	14	6,552	sw.	45	sw.	28	4	15	9	6.4	22.5	1890	10.6	1889
Duluth	656	23	29.34	30.12	+ .03	8.2	— 4.8	36	14	16	—28	1	0	30	— 2	62	1.64	+ 0.6	15	4,519	w.	35	nw.	28	11	11	6	5.3	32.2	1877	0.7	1875
Extreme Northwest.						0.1	— 6.0										0.48	— 0.1														
Moorhead	935	13	29.07	30.20	+ .05	— 1.7	— 6.6	33	13	7	—39	1	—10	33	— 8	74	1.29	+ 0.5	14	6,844	nw.	37	nw.	14	9	7	12	5.9	16.9	1882	— 3.9	1884
Saint Vincent	804	13	29.21	30.19	+ .01	— 4.6	— 5.6	30	20	7	—42	1	—16	40	—10	86	0.10	— 0.4	5	7,065	w.	34	nw.	14	14	5	9	4.8	8.7	1881	— 8.0	1884
Bismarck	1,698	19	28.22	30.20	+ .04	4.4	— 4.7	37	18	12	—41	1	— 4	27	— 1	80	0.20	— 0.4	7	7,279	nw.	47	nw.	22	9	12	7	5.0	26.8	1877	— 4.8	1875
Fort Buford	1,899	15	28.01	30.22	+ .05	1.6	— 7.3	37	19	11	—46	1	— 7	31	— 2	84	0.31	— 0.1	5	6,519	w.	48	w.	20	5	6	17	7.2	21.4	1882	— 5.0	1887

Table of miscellaneous meteorological data for February, 1893—Weather Bureau observations—Continued.

Districts and stations.	Elevation above sea-level, feet.	Length of record, years.	Pressure, in inches.			Temperature of the air, in degrees Fahrenheit.								Humidity and precipitation.					Wind.					Cloudless days.	Partly cloudy days.	Cloudy days.	Average cloudiness, tenths.	Mean temperature data since opening of station.			
			Mean pressure, 8 a. m. and 8 p. m. + 2.	Mean reduced.	Departure from normal.	Mean max. and min. + 2.	Departure from normal.	Maximum.	Date.	Mean maximum.	Minimum.	Date.	Mean minimum.	Greatest daily range.	Mean temperature of the dew-point.	Mean relative humidity, per cent.	Precipitation, in inches.	Departure from normal.	Days with .01, or more.	Total movement, miles.	Prevailing direction.	Maximum velocity. Miles per hour.	Maximum velocity. Direction.	Maximum velocity. Date					Highest for month.	Year.	Lowest for month.	Year.
Upper Miss. Valley.						20.7	— 5.7										2.22	+ 0.1													
Minneapolis						12.0		38	14	23	—27	1	1	40			1.58		9		nw.				8	10	10				
Red Wing	758		29.26	30.15		10.0		39	13	20	—26	4	0	35	1	65	2.84		8	7,039	w.	47	w.	28	8	11	9	5.5				
Saint Paul	850	23	29.16	30.16	+ .04	9.1	— 6.3	37	13	18	—26	1	0	36	3	74	1.87	+ 1.0	10	6,075	se.	35	nw.	28	7	9	12	6.1	31.8	1877	— 2.1	1875
La Crosse	720	21	29.30	30.14	+ .04	13.9	— 4.7	43	13	24	—26	4	4	41	8	78	1.74	+ 0.7	9	5,118	w.	32	w.	28	8	9	11	6.1	37.3	1878	6.3	1875
Davenport	613	22	29.43	30.14	+ .03	17.4	— 7.2	42	27	25	—14	4	10	29	12	77	1.69	0.0	11	8,705	w.	44	sw.	28	8	7	13	6.2	40.3	1882	10.1	1875
Des Moines	869	15	29.17	30.18	+ .05	17.4	— 5.4	45	27	27	—16	4	8	33	12	80	1.28	0.0	10	6,336	nw.	34	s.	21	9	13	6	5.5	36.0	1882	14.6	1885
Dubuque	651	20	29.39	30.15	+ .05	15.0	— 7.3	40	27	24	—21	4	6	31	10	78	1.30	— 0.3	7	4,667	w.	25	w.	28	11	7	10	5.1	35.7	1882	6.1	1875
Keokuk	613	22	29.47	30.17	+ .06	21.3	— 6.8	49	26	30	—12	4	12	35	15	76	1.76	— 0.1	9	5,807	w.	35	w.	9	10	8	10	5.0	39.5	1882	16.5	1885
Cairo	359	22	29.77	30.18	+ .06	26.4	— 2.9	64	19	45	6	7	28	39	31	82	3.93	— 0.2	12	7,441	nw.	36	sw.	23	10	5	13	5.9	49.0	1882	31.9	1885
Springfield, Ill	644	14	29.43	30.16	+ .03	25.2	— 6.0	51	26	33	— 8	7	18	43	19	77	3.47	— 0.3	12	7,939	nw.	36	w.	28	9	6	13	5.8	42.2	1882	20.9	1885
Hannibal	534		29.55	30.16		24.6		54	26	33	— 9	7	16	32	20	82	2.12		7	6,955	w.	40	w.	28	11	8	9	5.4				
Saint Louis	571	23	29.51	30.16	+ .03	30.8	— 4.3	58	19	38	— 1	7	23	47	24	76	2.98	0.0	9	7,711	nw.	48	w.	27	14	4	10	4.6	43.9	1882	26.0	1875
Missouri Valley.						30.8	— 4.0										1.29	— 0.1													
Columbia						28.4		58	26	40	— 6	7	16	43			1.97		6	6,150	nw.	32	nw.	9	10	9	9	5.2				
Kansas City	963	5	29.09	30.18		26.9		58	26	36	— 8	7	18	39	19	72	1.73		9	6,655	nw.	35	nw.	6	9	9	10	5.2	36.8	1892	26.9	1893
Springfield, Mo	1,356	8	28.65	30.15	+ .02	32.8	— 4.1	60	6	43	— 1	7	23	54	24	77	2.19	— 1.1	8	8,278	se.	37	w.	27	9	5	14	5.9	46.2	1882	32.6	1889
Leavenworth	857	22	29.22	30.20	+ .06	26.6	— 3.9	58	26	36	— 8	7	18	37	18	73	1.69	+ 0.2	7	7,414	nw.	39	nw.	9	6	11	11	6.0	42.0	1882	20.5	1875
Topeka		6				28.8		58	26	40	— 6	1	18	38			1.61		9		se.				11	13	4		37.2	1892	26.8	1889
Omaha	1,113	23	28.93	30.21	+ .04	19.5	— 4.6	52	19	28	—16	7	11	42	12	74	0.97	+ 0.2	9	6,633	n.	35	nw.	9	11	12	5	4.5	37.3	1877	13.4	1875
Crete		6				23.0		58	19	35	—16	1	11	46			1.22		4		nw.				11	9	8		30.9	1892	21.6	1891
Valentine		7																											27.7	1888	12.6	1891
Sioux City	1,165		28.84	30.18		15.2		45	23	25	—21	1	5	45	9	83	0.77		10	8,978	n.	42	s.	8	10	9	9	5.2				
Pierre†	1,470		28.50	30.20		13.4		49	19	23	—26	1	4	44	7	82	0.46		8	6,665	e.	34	nw.	20	12	6	10	4.8				
Huron	1,310	12	28.66	30.19	+ .02	9.2	— 3.9	40	*	20	—33	1	— 2	49	4	85	0.59	+ 0.1	10	8,923	nw.	36	nw.	5	11	11	6	5.0	24.7	1882	3.6	1887
Yankton	1,232	20	28.79	30.21	+ .05	15.8	— 3.6	51	12	25	—22	1	6	50	8	72	1.03	+ 0.3	10	7,686	nw.	48	nw.	8	10	10	8	5.1	33.7	1877	2.5	1875
Northern Slope.						16.8	— 5.8										0.67	0.0													
Havre ‡	2,477	13	27.38	30.21	+ .05	6.0	— 8.9	44	21	13	—45	1	— 1	45	2	83	0.34	— 0.3	9	7,263	w.	32	e.	1	8	9	11	5.7	30.3	1886	— 2.6	1887
Miles City	2,374		27.50	30.20		9.1		48	19	19	—45	1	0	59	2	73	0.44		7	4,233	w.	27	ne.	24	5	9	14	6.9				
Helena	4,118	13	25.74	30.24	+ .09	12.2	—10.2	43	16	20	—41	1	5	35	6	74	0.58	— 0.1	8	4,087	sw.	35	sw.	24	5	13	10	6.1	35.0	1888	5.0	1887
Rapid City	3,280	8	26.58	30.17	.00	17.0	— 5.0	58	19	28	—26	1	7	43	6	65	0.45	— 0.4	10	6,291	n.	37	s.	1	7	14	7	5.4	30.9	1882	16.4	1883
Cheyenne	6,105	22	23.88	30.19	+ .02	25.2	— 2.2	53	*	36	— 4	2	15	34	14	64	0.87	+ 0.6	6	7,364	nw.	48	nw.	23	11	13	4	4.1	33.4	1886	18.9	1883
Lander	5,377		24.53	30.18		19.2		48	4	33	—19	28	5	43	7	62	1.64		8	3,250	sw.	55	sw.	2	12	11	5	4.2				
Kearney	2,206		27.72	30.19		22.8		58	19	35	—18	1	11	42	12	71	1.10		6	10,172	nw.	60	nw.	9	11	9	8	4.7				
North Platte	2,841	19	27.08	30.21	+ .04	23.5	— 2.6	60	19	37	—16	7	10	50	12	69	0.62	+ 0.3	6	7,145	nw.	48	w.	9	8	14	6	4.9	35.3	1878	16.8	1883
Middle Slope.						23.9	— 1.8										0.50	— 0.1													
Colorado Springs †	6,098		23.92	30.13		28.9		59	5	40	— 3	2	18	42	11	52	0.08		5	8,025	n.	54	w.	8	8	11	9	5.3				
Denver	5,287	22	24.65	30.15	— .01	31.4	— 1.6	60	21	42	— 2	2	20	43	14	54	0.83	+ 0.3	8	5,664	s.	40	nw.	9	12	12	4	4.4	38.6	*	22.0	1883
Pikes Peak		16	17.46			0.4		18	22	5	—21	28	— 4	19	— 7	73	3.48		11	21,994	sw.	98	w.	4	8	9	11	5.9	7.9	1877	— 0.6	1880
Pueblo	4,734	5	25.18	30.11		31.9		63	22	46	— 2	2	18	49	14	54	0.11		5	5,802	nw.	48	n.	20	11	14	3	4.1	35.8	1892	31.2	1889
Concordia	1,410	8	28.61	30.20	+ .03	27.4	— 1.5	63	19	39	—11	1	16	41	15	70	0.34	— 0.4	7	6,360	s.	35	n.	5	18	5	5	3.4	34.0	1892	24.3	1887
Dodge City	2,523	19	27.40	30.16	+ .02	31.0	— 1.3	61	*	44	— 7	1	18	46	19	68	0.34	— 0.2	5	8,186	ne.	42	se.	13	9	13	6	4.6	41.3	1876	25.8	1885
Wichita	1,366	5	28.65	30.18		31.5		65	26	42	— 2	1	21	35	21	72	0.80		5	6,995	n.	38	n.	6	11	9	8	4.7	38.5	1892	31.5	*
Oklahoma City	1,239		28.81	30.18		35.8		74	22	47	6	7	24	42	26	72	0.69		8	7,693	n.	32	n.	1	12	5	11	5.2				
Southern Slope.						41.7	— 2.1										0.96	0.0													
Abilene	1,748	8	28.27	30.16	+ .03	44.4	— 3.7	75	22	56	10	2	33	48	31	70	0.33	— 0.8	4	9,859	n.	60	sw.	27	6	14	8	5.7	51.4	1890	44.4	1893
Amarillo	3,691		26.25	30.16		33.0		72	5	44	4	2	23	53	22	70	2.03		6	12,306	n.	60	sw.	2	8	9	11	5.7				
Fort Stanton	6,152	8	23.89	30.06	— .01	39.0	— 0.4	64	5	49	14	15	29	36	15	44	1.60	+ 0.9	6	5,881	w.	50	w.	9	5	15	8	5.8	42.2	1890	36.0	1889
Southern Plateau.						43.4	+ 0.2										0.57	0.0													
El Paso	3,796	15	26.20	30.10	— .02	49.6	— 0.3	74	5	61	25	16	38	39	19	38	0.52	+ 0.1	4	8,196	nw.	56	nw.	27	11	9	8	4.5	57.3	1879	46.7	1880
Santa Fe	7,059	21	23.17	30.08	— .01	33.8	+ 0.9	52	22	43	15	27	25	28	12	45	0.76	+ 0.1	11	5,256	sw.	46	sw.	26	16	7	5	3.8	37.0	1879	24.2	1880
Tucson	2,432	10	27.49	30.04		54.0	+ 0.8	80	4	68	31	28	39	44	30	48	0.82	— 0.1	4	4,994	nw.	48	sw.	26	12	9	7	4.5	58.3	1879	47.2	1880
Yuma	141	18	29.86	30.01	— .04	60.1	+ 1.1	87	19	75	32	16	46	41	27	33	T.	— 0.4	0	5,354	n.	39	w.	12	16	10	2	3.4	65.0	1877	52.2	1880
Keeler	3,632	8	26.31	30.08	+ .03	44.3	— 1.5	64	24	54	26	15	35	25	22	45	0.73	+ 0.2	4	5,565	nw.	61	sw.	8	11	5	12	5.0	50.8	1886	40.0	1887
Middle Plateau.						27.6	— 4.8										1.61	+ 0.7													
Carson City	4,720	6	25.30	30.17		35.7		64	21	47	12	7	25	38	21	55	2.33		7						12	8	8	4.6	40.3	1888	33.0	1890
Winnemucca	4,340	15	25.68	30.21	+ .06	28.0	— 4.0	45	21	37	—19	1	19	47	17	64	0.82	— 0.1	11	7,899	sw.	72	sw.	4	5	10	13	6.3	40.9	1879	24.7	1882
Salt Lake City	4,345	19	25.67	30.24	+ .04	28.5	— 4.9	49	4	36	5	1	21	27	22	75	1.64	+ 0.3	17	3,822	se.	37	nw.	8	8	5	15	6.5	40.0	1879	24.2	1883
Montrose	5,795	9	24.24	30.16	+ .08	25.9	— 5.5	50	5	36	— 2	15	16	32	16	71	2.36	+ 2.0	12	3,617	se.	24	ne.	6	7	7	14	6.8	34.9	1888	25.4	1891
Northern Plateau.						26.4	— 5.7										2.83	+ 0.8													
Baker City	3,430		26.45	30.12		24.2		44	23	33	—17	1	16	29	17	72	1.62		11	3,592	se.	20	se.	1	4	8	16	7.0				
Idaho Falls	4,742		25.22	30.28		14.4		40	4	25	—22	28	4	35	13	90	1.78		12	5,207	s.	40	sw.	2	1	3	24	8.9				
Spokane	1,930	13	28.00	30.14	+ .03	24.8	— 4.2	45	20	32	—19	2	17	28	21	87	3.91	+ 1.8	21	2,817	s.	24	s.	12	1	6	21	8.5	38.3	1888	18.5	1887
Walla Walla	1,018	8	29.01	30.17	+ .06	28.0	— 7.2	55	16	35	—15	1	21	31	24	85	1.75	— 0.1	17	3,166	sw.	23	s.	16	1	17	10	6.8	45.4	1888	23.0	1887
N. Pac. Coast Region.						37.7	— 2.8										9.11	+ 2.4													
East Clallam ‡						34.4		57	11	41	9	2	28	24			14.60		22		s.				3	0	21				
Fort Canby	179	10	29.79	29.99	+ .07	39.8	— 1.8	52	*	44	18	1	36	18	38	91	11.66	+ 4.5	25	12,466	se.	80	se.	1	3	4	21	8.5	46.6	1886	34.4	1887
Neah Bay		10				37.3	— 3.1	56	21	44	5	2	30	24			11.83		20		e.				2	3	23		44.8	1885	34.0	1887
Olympia	52	16	29.96	30.01	— .02	37.0	— 2.5	52	16	42	10	*	32	25	36	94	8.51	+ 1.2	21	3,242	s.	36	s.	3	0	14	14	7.6	45.1	1885	31.6	1887
Port Angeles	29	9	29.95	29.98	— .06	34.6	— 2.1	48	*	41	7	2	29	17	30	84	5.23	+ 1.9	16	3,860	s.	44	n.	1	2	12	14	7.4	42.7	1885	28.9	1887
Port Crescent						31.8°		46°	21	37°	8°	2	26°	18°			7.90		18		w.				2	1	25				
Pysht																															
Tatoosh Island	86	9	29.85	29.95	— .07	37.7	— 3.0	52	18	42	13	2	34	18	37	94	11.64	+ 3.1	22	13,748	e.	78	e.	2	2	1	25	8.7	44.9	1885	34.3	1887
Astoria		8				40.0	— 3.0	51	21	45	22	1	35	14			12.42	+ 5.2	25		e.					0	7	21		46.2	1885	39.4	1891
Portland	157	22	29.92	30.10	+ .02	37.2	— 4.2	53	20	43	8	1	31	24	34	90	5.19	— 1.5	23	5,407	sw.	40	e.	8	0	5	23	8.5	47.2	1885	31.9	1887
Roseburg †	523	16	29.55	30.13	+ .02	41.0	— 2.2	58	20	47	20	1	35	24	35	81	7.01	+ 2.4	17	2,153	s.	24	sw.	12	0	6	22	8.8	48.0	1885	33.6	1887
Mid. Pac. Coast Reg.						47.6	— 1.7										5.72	— 0.6													
Eureka	64	7	30.10	30.16	+ .10	45.2	— 0.7	57	11	51	29	1	39	21	41	88	6.27	— 1.1	17	5,139	n.	38	n.	25	6	9	13	6.5	48.2	1889	41.4	1887
Red Bluff	342	16	29.78	30.16	+ .05	46.8	— 2.5	70	20	55	27	1	38	26	37	73	3.22	— 0.2	6	5,414	nw.	36	nw.	24	13	8	7	4.5	54.5	1886	43.4	1887
Sacramento	64	16	30.06	30.13	+ .02	48.3	— 2.0	67	24	55	30	1	41	25	41	78	2.66	— 0.3	7	5,755	nw.	36	nw.	22	10	7	11	5.2	55.0	1879	44.7	1887
San Francisco	153	22	29.98	30.15	+ .05	50.3	— 1.7	69	24	56	39	2	44	21	40	70	2.75	— 1.0	9	5,612	sw.	38	sw.	25	11	10	7	4.7	55.8	1886	47.0	1887
Point Reyes Light						47.0		58	*	52	37	*	42	15			2.58		8		nw.					4	7	17				
S. Pac. Coast Region.						54.7	— 0.3										1.37	— 1.5													
Fresno	338	6	29.76	30.13		48.4		70	21	58	28	1	39	30	40	76	2.21		5	3,411	nw.	25	nw.	12	16	5	7	4.5	53.2	*	47.2	1890
Los Angeles	330	16	29.71	30.07	— .01	55.0	0.0	79	21	66	38	27	45	33	44	73	2.27	— 1.1	5	2,666	nw.	28	n.	13	13	10	5	4.2	59.5	1886	50.1	1880
San Diego	93	22	29.97	30.07	— .02	54.4	— 0.6	75	*	63	40	20	46	34	43	69	0.47	— 1.9	4	3,430	nw.	22	nw.	14	14	10	4	4.3	58.5	1886	50.8	1880

NOTE.—The data at stations having no departures are not used in computing the district averages. Letters of the alphabet denote number of days missing from the record. *Two or more directions, dates, or years. †Received too late to be considered in departures, etc. ‡All barometer, temperature, and precipitation normals, and extremes of temperature are obtained from Fort Assiniboine records.

STATIONS OF THE WEATHER BUREAU.

Station.	Observer.
*First Order.**	
Abilene, Tex	Allen Buell.
Albany, N. Y	A. F. Sims.
Alpena, Mich	H. McP. Baldwin.
Atlanta, Ga	Park Morrill.
Augusta, Ga	David Fisher.
Baltimore, Md	Dr. C. P. Cronk.
Bismarck, N. Dak	Wm. H. Fallon.
Boston, Mass	J. Warren Smith.
Buffalo, N. Y	D. Cuthbertson.
Chicago, Ill	E. C. Vose.
Cincinnati, Ohio	S. S. Bassler.
Cleveland, Ohio	W. B. Stockman.
Colorado Springs, Colo	U. G. Myers.
Columbus, Ohio	C. M. Strong.
Davenport, Iowa	F. J. Wals.
Denver, Colo	J. J. Gilligan.
Des Moines, Iowa	J. S. Hazen.
Detroit, Mich	E. A. Evans.
Dodge City, Kansas	Geo. T. Todd.
Duluth, Minn	B. H. Bronson.
Eastport, Me	D. C. Murphy.
El Paso, Tex	N. D. Lane.
Galveston, Tex	Dr. I. M. Cline.
Havre, Mont	Chas. W. Ling.
Helena, Mont	E. J. Glass.
Huron, S. Dak	S. W. Glenn.
Indianapolis, Ind	C. F. R. Wappenhans.
Jacksonville, Fla	E. R. Demain.
Kansas City, Mo	P. Connor.
Keeler, Cal	H. E. Wilkinson.
Key West, Fla	H. B. Boyer.
Knoxville, Tenn	Henry Pennywitt.
Lynchburg, Va	J. N. Ryker.
Manistee, Mich	S. L. Dosher.
Marquette, Mich	P. McDonough.
Memphis, Tenn	W. M. Wilson.
Milwaukee, Wis	W. L. Moore.
Moorhead, Minn	S. G. Duffey.
Nantucket, Mass	B. A. Blundon.
Nashville, Tenn	J. B. Marbury.
New Haven, Conn	H. J. Cox.
New Orleans, La	R. E. Kerkam.
New York City	E. B. Dunn.
Norfolk, Va	A. B. Crane.
Olympia, Wash	H. F. Alciatore.
Omaha, Nebr	Geo. E. Hunt.
Philadelphia, Pa	L. M. Dey.
Pikes Peak, Colo	U. G. Myers.
Pittsburg, Pa	O. D. Stewart.
Portland, Oregon	B. S. Pague.
Rochester, N. Y	A. L. White.
Roseburg, Oregon	Thos. Gibson.
Saint Louis, Mo	W. H. Hammon.
Saint Paul, Minn	E. C. Thompson.
Salt Lake City, Utah	Geo. N. Salisbury.
San Diego, Cal	M. L. Hearne.
San Francisco, Cal	P. T. Jenkins.
Santa Fe, N. Mex	H. B. Hersey.
Sault Ste. Marie, Mich	C. L. Bozzell.
Savannah, Ga	P. H. Smyth.
Spokane, Wash	Chas. Stewart.
Tampa, Fla	Thomas J. Considine.
Toledo, Ohio	E. A. Hanner.
Vicksburg, Miss	Dr. Robert J. Hyatt.
Washington, D. C	S. W. Beall.
Wilmington, N. C	F. P. Chaffee.
Yuma, Ariz	A. Ashenberger.
Second Order.†	
Amarillo, Tex	Wayland Bailey.
Atlantic City, N. J	J. W. Bauer.
Baker City, Oregon	C. H. Stuller.
Block Island, R. I	Wm. Davis.
Buford, Fort, N. Dak	E. C. Hobbs.
Cairo, Ill	E. H. Emery.
Canby, Fort, Wash	R. O. Williams.
Carson City, Nev	Ford A. Carpenter.
Charleston, S. C	L. N. Jesunofsky.
Charlotte, N. C	I. G. Gardiner.
Chattanooga, Tenn	L. M. Pindell.
Cheboygan, Mich	J. H. Clery.
Cheyenne, Wyo	E. M. Ravenscraft.
Concordia, Kans	L. M. Tarr.
Corpus Christi, Tex	George Reeder.
Dubuque, Iowa	S. C. Emery.
Erie, Pa	Peter Wood.
Eureka, Cal	Maurice Connell.
Fort Smith, Ark	R. Q. Grant.
Fresno, Cal	J. R. Williams.
Grand Haven, Mich	Geo. W. Felger.
Green Bay, Wis	F. W. Conrad.
Hannibal, Mo	Wm. E. Butler.
Harrisburg, Pa	Frank Ridgway.
Hatteras, N. C	H. B. Dick.
Idaho Falls, Idaho	James H. Smith.
Jupiter, Fla	A. J. Mitchell.
Kearney, Nebr	H. H. Curley.
Keokuk, Iowa	F. Z. Gosewisch.
Kittyhawk, N. C	Walter H. Scholl.
La Crosse, Wis	W. U. Simons.
Lander, Wyo	R. M. Crawford.
Leavenworth, Kans	L. A. Welsh.
Lexington, Ky	V. E. Muncy.
Little Rock, Ark	F. H. Clarke.
Los Angeles, Cal	G. E. Franklin.
Louisville, Ky	Frank Burke.
Manchester, N. H	J. H. Melton.
Meridian, Miss	Geo. Hass Hagen.
Miles City, Mont	H. R. Boynton.
Mobile, Ala	Jas. A. Barry.
Montgomery, Ala	Arthur E. Hackett.
Montrose, Colo	P. J. Bolton.
New London, Conn	R. O. Lazenby.
Northfield, Vt	Wm. Line.
North Platte, Nebr	J. C. Piercy.
Oklahoma, Okla. T	Jas. I. Widmeyer.
Oswego, N. Y	J. G. Linsley.
Palestine, Tex	J. M. Sherier.
Parkersburg, W. Va	W. W. Dent.
Pensacola, Fla	E. C. Easton.
Pierre, S. Dak	W. A. Shaw.
Point Barrow, Alaska	L. M. Stevenson.
Port Angeles, Wash	Wm. Bell.
Port Huron, Mich	Wm. M. Edmondson.
Portland, Me	E. P. Jones.
Pueblo, Colo	F. H. Brandenburg.
Raleigh, N. C	C. F. von Herrmann.
Rapid City, S. Dak	Wm. Norrington.
Red Bluff, Cal	John J. McLean.
Red Wing, Minn	F. T. Williams.
Sacramento, Cal	J. A. Barwick.
Saint Vincent, Minn	H. W. Grasse.
San Antonio, Tex	L. F. Passailaigue.
Sandusky, Ohio	B. F. Hough.
Shreveport, La	C. A. Smith.
Sioux City, Iowa	U. G. Purssell.
Southport, N. C	Louis Dorman.
Springfield, Ill	John Craig.
Springfield, Mo	T. S. Collins.
Stanton, Fort, N. Mex	Mrs. M. H. Bailey.
Tatoosh Island, Wash	Frank R. Beahan.
Titusville, Fla	Jos. E. Lanouette.
Tucson, Ariz	Wm. Burrows.
Valentine, Nebr	[Temporarily closed.]
Walla Walla, Wash	Fitzhugh Newman.
Wichita, Kans	Dr. Fred. L. Johnson.
Winnemucca, Nev	Geo. D. Boutcher
Woods Holl, Mass	J. P. Slaughter.
Yankton, S. Dak	A. J. Davis.
Third Order.‡	
Astoria, Oregon	John Grover.
Auburn, Ala	Prof. P. H. Mell.
Cape Henry, Va	J. P. Sherry.
Columbia, Mo	H. A. McNally.
Columbia, S. C	B. R. Stuart.
Crete, Nebr	G. A. Loveland.
Currituck Inlet, N. C	John D. Blagden.
East Clallam, Wash	R. S. Dimmick.
Escanaba, Mich	J. C. Morrell.
Ithaca, N. Y	R. M. Hardinge.
Micco, Fla	Hal. P. Hardin.
Minneapolis, Minn	E. A. Beals.
Narragansett Pier, R. I	Mrs. M. E. Conway.
Neah Bay, Wash	Charles Adie.
New Brunswick, N. J	E. W. McGann.
Point Reyes Light, Cal	T. R. Ryan.
Port Crescent, Wash	Otto B. Hart.
Pysht, Wash	J. P. Fallihee.
Topeka, Kans	T. B. Jennings.
Vineyard Haven, Mass	W. W. Neifert.
Special Cotton Region Stations.§	
Atlanta, Ga. (center).	
Columbus, Ga	J. W. Long.
Gainesville, Ga	R. T. Murphy.
Greenville, S. C	Mrs. S. A. Crittenden.
Griffin, Ga	P. H. McDowell.
Macon, Ga	W. M. Craven.
Newnan, Ga	Nora M. Avery.
Spartanburg, S. C	F. P. Robinson.
Toccoa, Ga	J. K. Dixon.
West Point, Ga	J. A. Erwin.
Augusta, Ga. (center).	
Allendale, S. C	C. B. Farmer.
Athens, Ga	W. P. Briggs.
Batesburg, S. C	D. P. Hartley.
Blackville, S. C	S. S. Turner.
Camak, Ga	J. A. Chapman.
Greenwood, S. C	W. D. Vance.
Union Point, Ga	R. F. Bryan.
Washington, Ga	Lucy V. Kemp.
Waynesboro, Ga	H. W. Blount.
Charleston, S. C. (center).	
Green Pond, S. C	E. G. Strobel.
Hardeeville, S. C	W. J. Evans.
Kingstree, S. C	T. F. Willis.
St. Georges, S. C	W. G. Sease.
St. Matthews, S. C	J. S. Wannamaker.
Galveston, Tex. (center).	
Belton, Tex	A. J. Embree.
Brenham, Tex	J. G. Sloan.
Columbia, Tex	J. S. Rogers.
Corsicana, Tex	E. L. Gibson.
Cuero, Tex	Dr. J. M. Reuss.
Dallas, Tex	H. P. Berry.
Hearne, Tex	W. A. Snell.
Houston, Tex	D. R. Saunders.
Huntsville, Tex	W. Y. Barr.
Luling, Tex	J. E. Fisher.
Longview, Tex	G. W. Krech.
Orange, Tex	J. H. Kelly.
Tyler, Tex	W. A. Hartel.
Waco, Tex	W. H. Godber.
Weatherford, Tex	B. H. Ledbetter.
Little Rock, Ark. (center).	
Brinkley, Ark	A. J. Hahn.
Forrest, Ark	J. H. Bard.
Helena, Ark	A. J. Gaschen.
Malvern, Ark	Jos. Coffer.
Newport, Ark	R. C. McMann.
Paris, Tex	C. E. Thorne.
Pine Bluff, Ark	J. E. O'Connor.
Prescott, Ark	Wm. Friganza.
Russellville, Ark	O. M. Ellsworth.
Texarkana, Ark	M. J. Nash.
Memphis, Tenn. (center).	
Arlington, Tenn	A. T. B. Etheridge.
Batesville, Miss	J. M. Cox.
Bolivar, Tenn	W. F. McCarley.
Brownsville, Tenn	W. A. Roberts.
Corinth, Miss	W. O. Henson.
Covington, Tenn	W. N. White.
Decatur, Ala	J. M. Vickray.
Dyersburg, Tenn	H. G. Wood.
Hernando, Miss	L. B. Jones.
Holly Springs, Miss	N. T. Bryant.
Milan, Tenn	O. F. Cantwell.
Tuscumbia, Ala	John Lasseter
Mobile, Ala. (center).	
Aberdeen, Miss	O. L. McKay.
Columbus, Miss	W. B. Hopkins.
Evergreen, Ala	Mattie Lee.
Livingston, Ala	L. J. Marbry.
Macon, Miss	B. J. Allen.
Okolona, Miss	S. J. Russell.
Thomasville, Ala	J. N. Cammack.
Waynesboro, Miss	W. R. McKinley
Montgomery, Ala. (center).	
Eufaula, Ala	O. T. Moore.
Fort Deposit, Ala	W. L. Van Pelt.
Marion, Ala	Ira J. Davis.
Opelika, Ala	W. L. Carmack.
Pine Apple, Ala	J. B. Raab.
Union Springs, Ala	T. P. Wade.
New Orleans, La. (center).	
Alexandria City, La	L. C. Giffe.
Amite, La	Florence Hills.
Brookhaven, Miss	E. M. Bee.
Cheyneyville, La	W. W. Wall.
Coushatta, La	L. M. Howard.
Hazlehurst, Miss	B. Fugate.
Lafayette, La	J. J. Davidson.
Minden, La	W. S. Hunter.
Natches, Miss	C. Steitenroth.
Natchitoches, La	Sam Levy.
Port Gibson, Miss	H. H. Crisler.
Savannah, Ga. (center).	
Albany, Ga	J. S. Clark.
Alapaha, Ga	C. I. Jones.
Americus, Ga	L. A. Smith.
Bainbridge, Ga	J. E. Peacock.
Cordele, Ga	W. D. Webster.
Eastman, Ga	C. H. Peacock.
Fort Gaines, Ga	S. E. Lewis.
Gainesville, Fla	James Bell.
Millen, Ga	J. R. Sheppard.
Quitman, Ga	A. W. Thomas.
Thomasville, Ga	Robt. Thomas, Jr.
Way Cross, Ga	W. P. Whelphy.
Vicksburg, Miss. (center).	
Jackson, Miss	H. S. Wright.
Lake, Miss	Willie Wilkins.
Monroe, La	W. W. Renwick.
Rolling Fork, Miss	S. W. Langford.
Wilmington, N. C. (center).	
Cheraw, S. C	W. R. Godfrey.
Florence, S. C	P. H. Walsh.
Goldsboro, N. C	Nettie Thomas.
Greensboro, N. C	G. W. Pritchett.
Lumberton, N. C	B. M. Davis.
Newbern, N. C	W. G. Boyd.
Weldon, N. C	T. A. Clarke.
Sugar and Rice Stations.§	
New Orleans, La. (center).	
Baton Rouge, La	H. A. Morgan.
Covington, La	W. B. Franklin.
Donaldsonville, La	W. D. Park.
Franklin, La	E. M. Cornay.
Lake Charles, La	Wm. Meyer.
Opelousas, La	E. J. Clements.
Rayne, La	I. A. Smith.
Schriever, La	John T. Moore.

* Take two observations daily, and also record continuously important meteorological phenomena, such as wind-direction and velocity, precipitation, temperature, barometric pressure, etc., by means of self-registering instruments. † Take two observations daily. ‡ Take one observation, in addition to other special duties. § Take one observation daily from April 15 to November 30 each year, and telegraph it to district centers (regular Weather Bureau stations).

Form Map G—1893

Chart I. Tracks of area

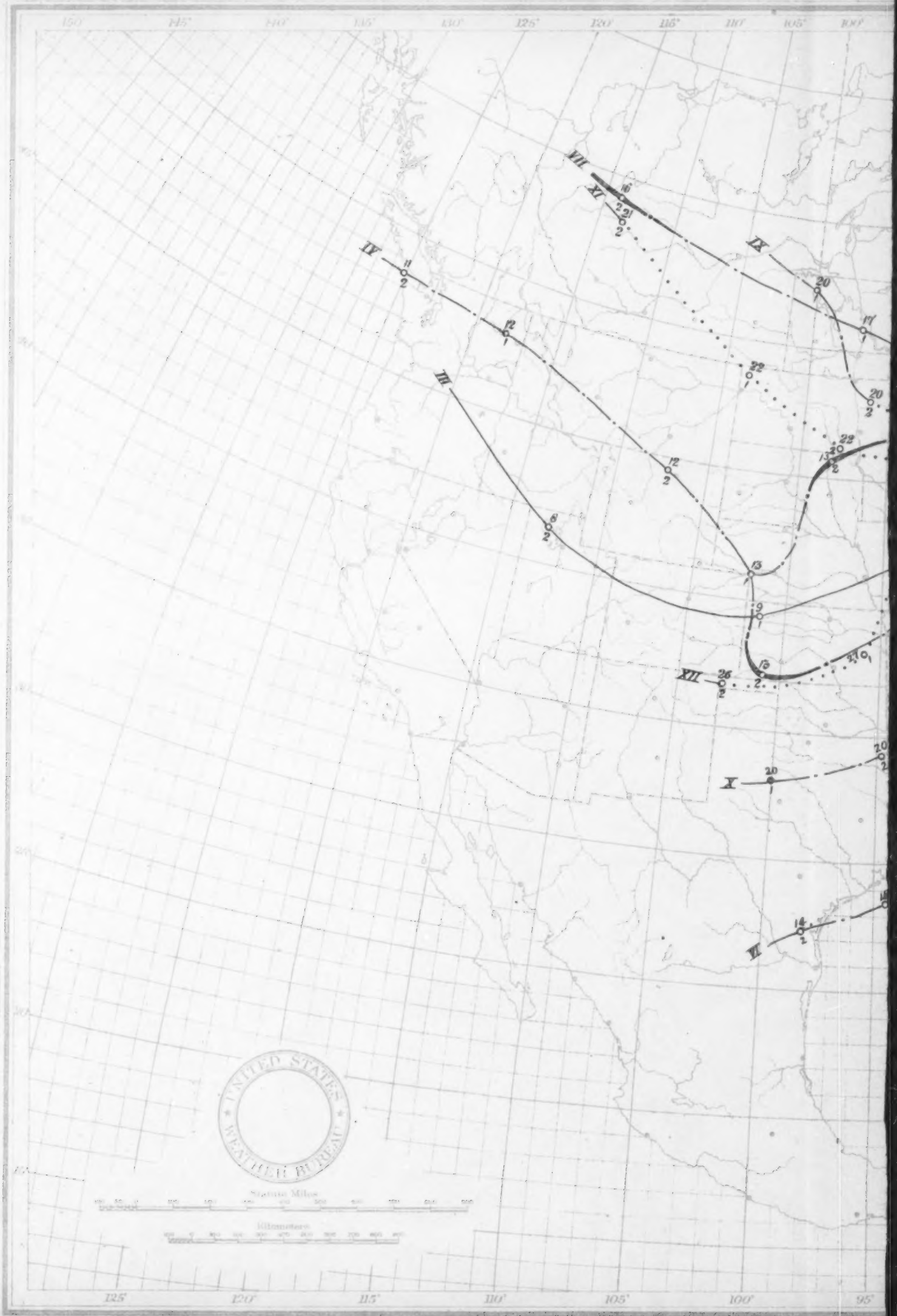
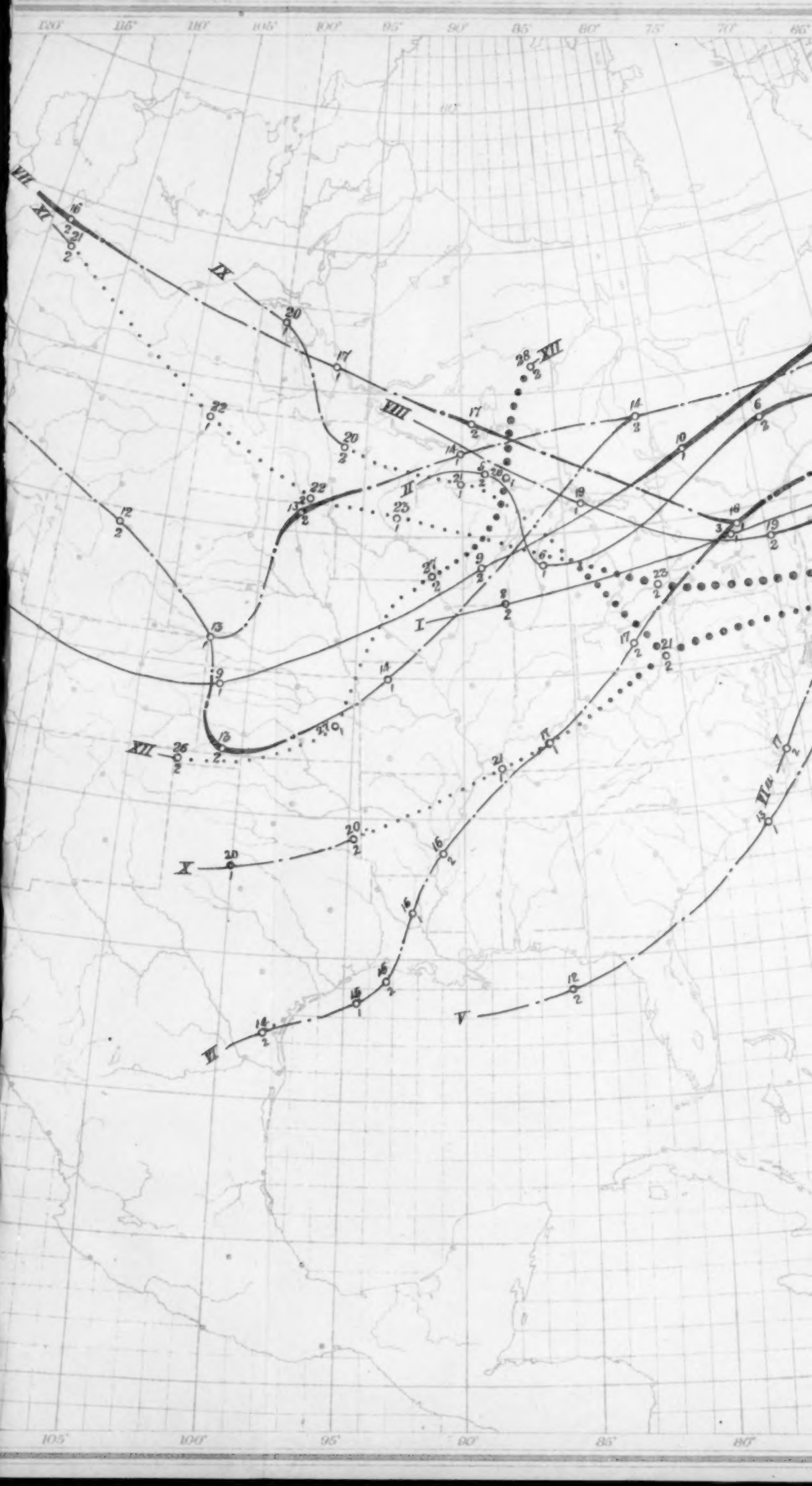


Chart I. Tracks of areas of Low Pressure. February, 1893.



NOTES.

——— Tracks of first decade of month.
·—·— Tracks of second decade of month.
····· Tracks from 21st to 28th, inclusive.

The Roman letters show number and order of areas of low pressure. The figures above the lines show the days of the month; those below (1 and 2) indicate, respectively, the 8 a. m. and 8 p. m., 75th meridian time, observations. The heavy portion of tracks indicates where the greatest storm energy was displayed.

The dotted shading ( ) indicates fog belts.

The ruled shading ( ) indicates the position in which field-ice or icebergs were observed.

Chart II. Isobars, Isotherms, and Winds, February, 1893

Form 1067 F

Chart II. Isobars, Isotherms, and Winds. February, 1893.

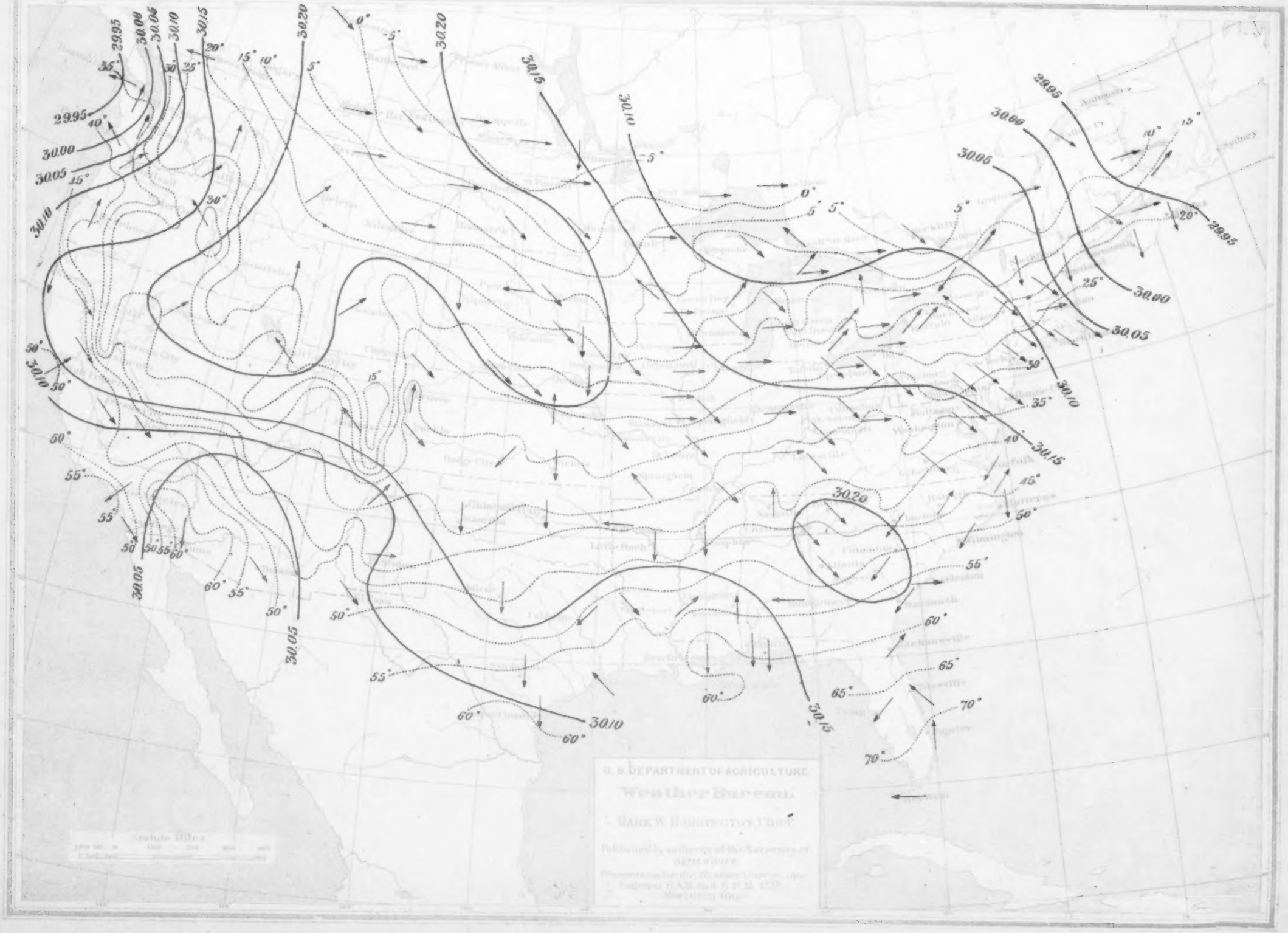


Chart III. Precipitation, February, 1902.

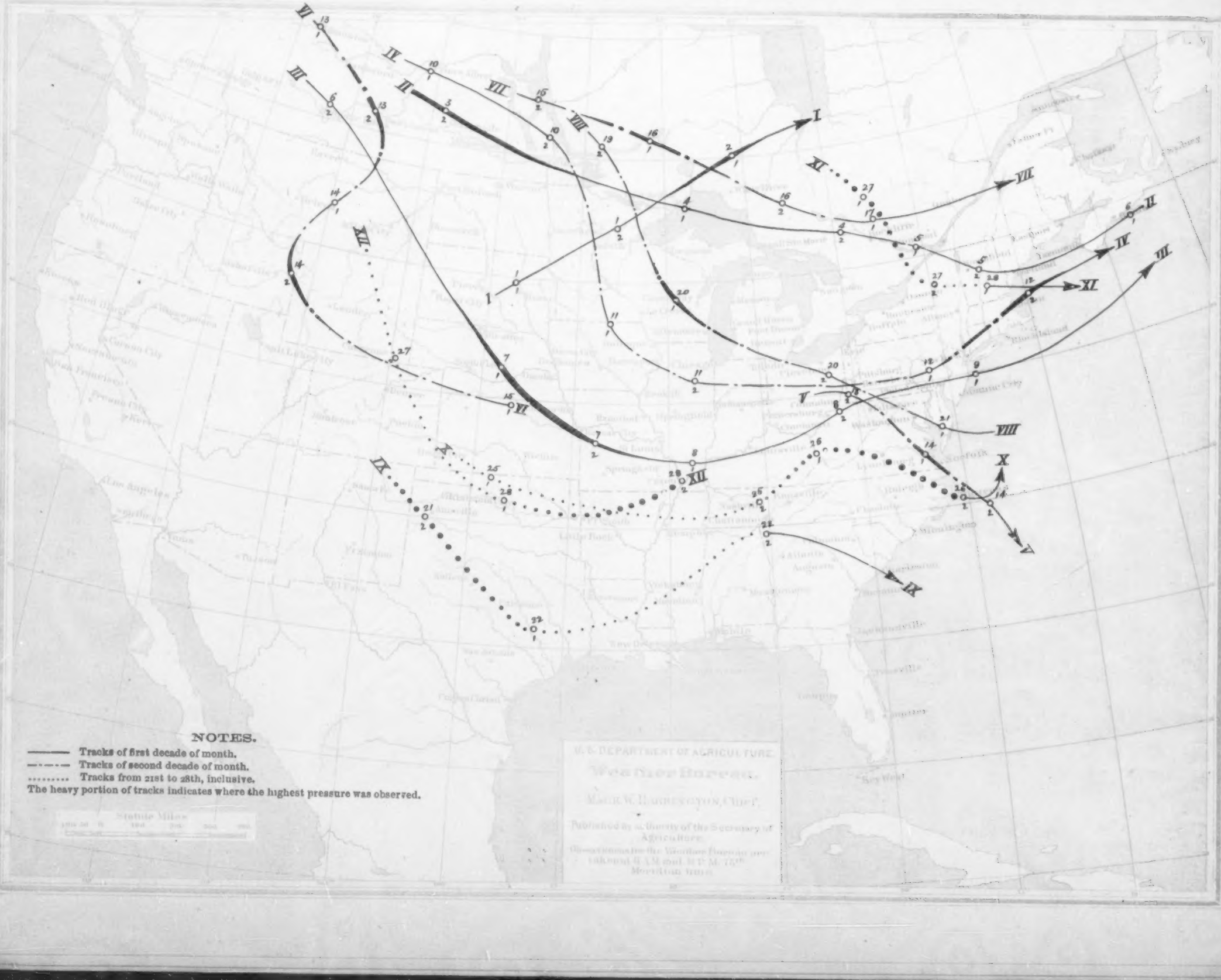
Form 106 F

Chart III. Precipitation. February, 1893.

Chart IV. Tracks of cases of Fish [illegible]

Form 1081 F

Chart IV. Tracks of areas of High Pressure. February, 1893.



NOTES.

——— Tracks of first decade of month.
—·—·— Tracks of second decade of month.
····· Tracks from 21st to 28th, inclusive.
The heavy portion of tracks indicates where the highest pressure was observed.

Chart V. Depth of Snowfall (inches) and Limits of Freezing Weather, February, 1893.

Chart V. Depth of Snowfall (inches) and Limits of Freezing Weather, February, 1893.

Chart VI. Depth of Snow (inches) reported on ground February 15, 1893.

Chart VI. Depth of Snow (inches) reported on ground February 15, 1893.

Chart VII. Depth of Snow (inches) reported on ground February 28, 1893.

Form 1002 F

Chart VII. Depth of Snow (inches) reported on ground February 28, 1893.

Chart VIII. Normal Pressure (20 years) and Average Wind Direction (15 years) for February.

Chart VIII. Normal Pressure (20 years) and Average Wind Direction (15 years) for February.